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NOTES ON THE NESTING OF THE AFRICAN GREEN HERON (*BUTORIDES ATRICAPILLA*) IN NATAL.¹

BY RAYMOND B. COWLES.

Plates XIII-XIV.

JUDGING by the records in available literature, observations on this species of Heron are not common, especially in South Africa, and it seems advisable to record the following observations which were obtained about ten miles from the mouth of the Umzumbi river on the small tributary stream, Umnambite.

Apparently the favorite nesting place of this small Heron is in the mangroves found growing in bays and other inlets near the sea. But they may also be found nesting on fresh water streams a considerable distance from salt water.

Only one nest was observed during a period of two years but young birds had been seen near this locality a year prior to the time when the following observations were made and it therefore seems that at least one pair customarily breeds in this locality. The nest under discussion was first observed on September 20, 1926, and, according to the native who reported it, there had been only two eggs in the nest three days previously. On the 20th however, three eggs were present, indicating that incubation had probably commenced not more than one or two days previous to this date. The nesting time coincides with that observed by A. D. Millar (*Annals of the Durban Museum*, Vol. I, part I, E. C. Chubb,

¹ The work here recorded was carried on under the direction of Dr. A. A. Allen of Cornell University, as part of the requirement for the degree of Doctor of Philosophy.

pp. 29 and 47). The nest was placed about ten feet above the stream on some fairly stout branches overhanging the water and was rather loosely composed of twigs, and was without any lining. It was so shallow as almost to show the tops of the eggs when viewed from its own level. The eggs were pale blue, without markings of any kind and showed conspicuously, especially so since at the time of laying, and during incubation, the tree was practically denuded of leaves.

During the early stages of incubation, that is, until September 28, the parent was extremely shy and could be seen on the nest only by approaching with unusual caution. By September 30, the bird was becoming less shy and on this date was photographed from a blind placed about fifteen feet from the nest. By October 1, the parent Heron seemed to have lost most of its fear, or the incubation instinct had become firmly established. At any rate photography was more practicable and although it was raining the bird was so motionless that a short time exposure could be made. On October 5 the parent was extraordinarily tame and when flushed from the nest soon returned. Although tame, the bird showed considerable nervousness, principally by raising the crest until the profile was strongly serrated and the feathers almost vertical. In addition to this habit, when alarmed or curious, nervousness was evidenced by snapping the short tail rapidly up and down, a rather ludicrous performance when practised in conjunction with the erected crest. These habits of displaying nervousness seem to disappear as soon as the actual source of danger is seen, for upon actually observing an enemy approach the bird invariably lifted the bill until it pointed nearly vertically and became motionless except for an imperceptible turning of the head to follow the movements of the enemy. When attempting to escape observation by this "freezing," the outline takes on the appearance of anything but a bird. The shape of the head and neck, even of the body when held motionless, is deceiving and in addition to shape the coloring and the markings of the feathers fit the resemblance to inanimate objects perfectly. In fact it seems as though the nest is far more conspicuous without the incubating parent than with it. When observing the protective resemblance and coloration in this species one is struck by the



AFRICAN GREEN HERON.

Butorides atricapilla.

UPPER: FEEDING YOUNG.

LOWER: STARTING OUT FOR FOOD.

similarity and adaptation to a reed-bed environment yet at the same time and more remarkable still is the way in which the bird fits into an environment which is obviously not that to which it is particularly adapted.

When the Heron is alarmed and watching an enemy, the peculiar situation of the eyes allows it to face the danger and yet see well. The eyes are so placed that when in this position, with the bill pointed almost vertically, they peer forward and the line of vision passes across the base of the bill. This binocular vision is doubtless a great aid in estimating the distance of an enemy or of prey. It is interesting to note that the young take this position and have the binocular vision developed long before they are ready to leave the nest. Although of great importance to the birds this habit does not enhance their beauty when viewed from the front. In fact the pugnacious glare of the adult and young is rather ridiculous owing to the closeness of the eyes to the base of the bill, and, in the young, whose eyes are of the pale hue common in young of many species, the apparent attempt to look ferocious becomes laughable. Anger was displayed by the adult on only one occasion, and was a demonstration against the repeated appearance of the camera "boy" near the nest. It was expressed by the raising of her crest, threatening motions and a few raucous squawks. The boy approached quite close to the nest and she remained until he was only a few feet away.

The eggs hatched about October 8, therefore the incubation period can be given as about eighteen days, four days more or less would probably cover the possible error. Unfortunately it was impossible to reach the nest and so study the birds at close range, and for this reason no careful observations were made of the development of the feathers, and other habits requiring the handling of the young. When first observed the immature birds were only slightly active, just able to lift up their heads, and were covered with a light grey down. The only variation in color at this stage was the presence of an almost white streak down the center of the throat. The bills which were short and stubby, almost conical, were yellow, while the skin about the eyes was a greenish yellow.

By October 14 the young were considerably larger, and had

become quite active. All three were stretching and were busily engaged in preening while the two large ones were able to stagger about the nest using their wings in order to maintain their balance. These larger birds, and later the smaller one, habitually perched or moved about near the edge of the nest, and while stretching or preening were perpetually on the verge of falling to the water below.

At this stage the young were fed once every twenty minutes but as they grew older it was noticeable that feedings were not so frequent. One of the most interesting observations during this middle period of development was the fact that invariably, five minutes or so before the arrival of the parent with food, the sleeping young would waken, stretch and preen, stagger about the nest a few times, then the parent would announce her arrival in the vicinity with a harsh call followed a moment later by her appearance at the nest. The invariable habit of approach was to alight on the ends of the branches supporting the nest and to walk up these limbs to the nest itself. She was never observed to fly directly to the nest and alight. After looking about cautiously for a short time feeding would commence and proceed with only slight interruptions, followed by a short rest of five minutes or more before flying off in search of more food. The feeding process was interesting but apparently a painful procedure for both the young and parent. Just before reaching over the nest the parent utters a cluck almost exactly like the cluck of a setting hen, and at once the young rear to their full height and attempt to grasp the base of the parent's bill. As soon as one of them is successful the most interesting part of the feeding process commences. The successful fledgling grasps the parent's entire bill at the base in such a way as to bring her upper mandible against the part of his mouth nearest the gullet, i. e. the top of the parent's head is presented toward the young bird and the bills of the two are at right angles to each other. As soon as the proper position for feeding has been obtained, sometimes before, the parent and young bird, each sharing in the effort, writhe about and bob and twist as though in great pain, the process continuing until feeding has been completed. After disengaging, the young and parent preen, stretch, rest, and the young settles down as though asleep while the adult soon leaves on another expedition.



AFRICAN GREEN HERON.
Butorides atricapilla.

UPPER: LEAVING NEST.

LOWER: INCUBATING EGGS. PARTLY CONSTRUCTED WEAVER BIRD'S
(*Hyphanturgus*) NEST, AT LOWER LEFT.

On October 18, at 6:20 A.M. the parent was observed feeding the young and on this occasion was presenting a fish about four inches long to one of the fledglings. The young bird seemed unable to swallow a fish of such size in spite of its comparatively huge maw, and when the fish dropped into the nest one of the other birds picked it up. After turning it about a few times until the anterior end pointed towards the throat, it was successfully swallowed. The fish was shaped somewhat like a bass or bream and was partially digested, the head being missing and the rest of the body having the pulpy appearance common to fish found in the digestive tract of a bird. That the awkward motions carried on during feeding are produced by the young bird as well as the adult was plainly observed upon this occasion. The parent was nervous and apparently was through feeding, yet one of the young repeatedly reached up, grasped the adult's bill and in spite of the objections offered by the parent proceeded with the writhing and twisting motions. The decided difference in the motions indicated the lack of coöperation. The feeding operation observed at 6:20 A.M. was the last until 9:00 A.M. at least, and was probably the last of the early morning series of feedings. Contrary to the conditions observed earlier, feeding at this later date was noticeably more irregular and at longer intervals.

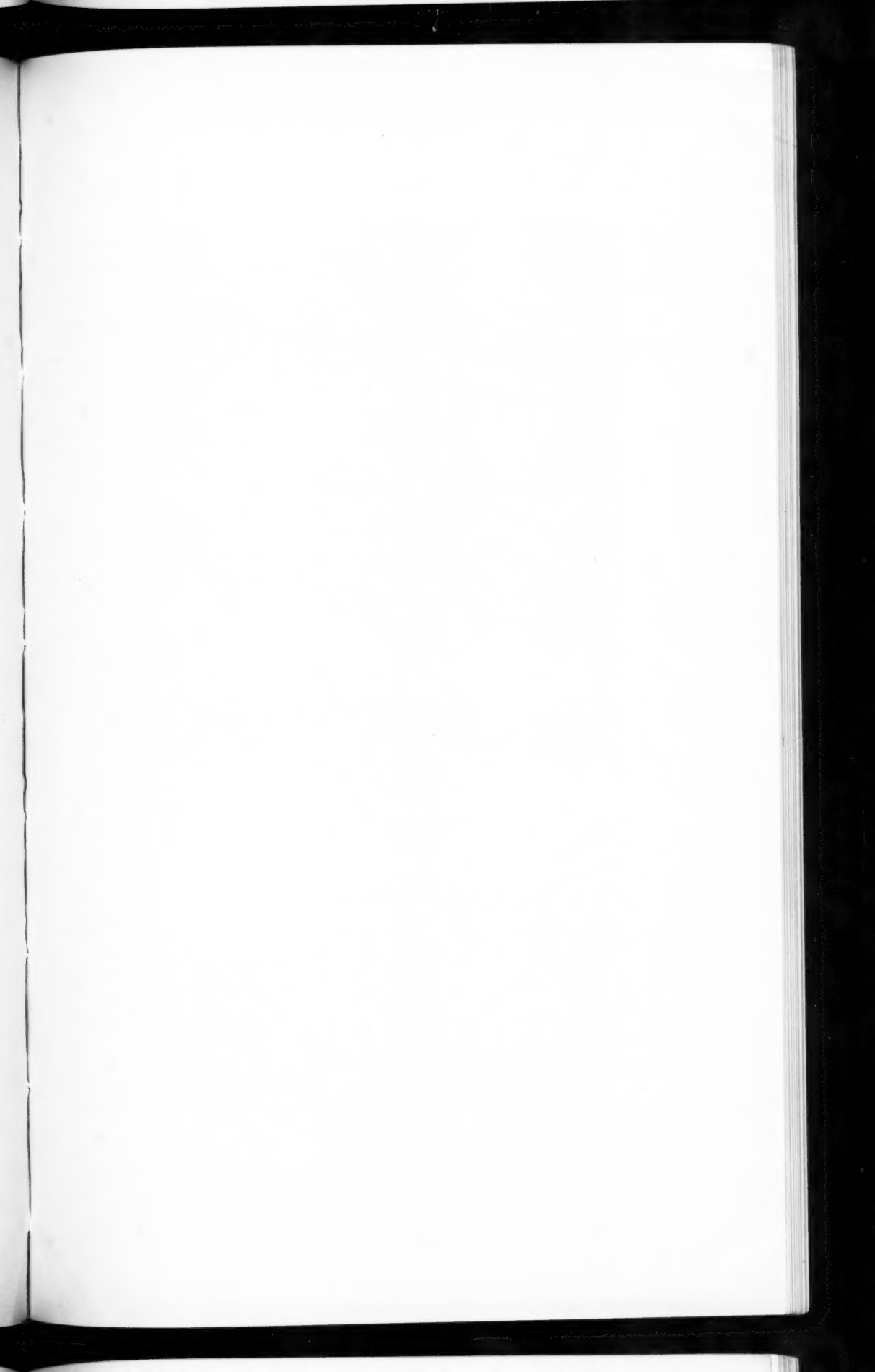
The young birds at this age show some well developed feathers, notably the primaries and wing coverts. These feathers have white or very pale margins so that the wings have a mottled appearance. Although the retrices may have been developing they were still invisible at a distance of about fifteen feet, nearer than which it was impossible to approach. The tail, in spite of the lack of retrices, and bearing so far as could be seen only the tuft of white down, is wagged up and down as industriously and nervously as that of the parent. The bill is pale yellow while the skin about the eyes, as well as the legs and feet are pea-green which in direct sunlight shows a yellowish tinge. Although the feathers on the rest of the bird were not well developed they were plainly visible on the neck and breast, but the belly and rump appeared to be covered with down only.

Although the weather during this period was never really cold, the young appeared to suffer from the lower temperature of early

morning, and before sunrise crouched low in the nest, huddled together for warmth. As soon as the sun appeared, however, they became exceedingly active and for a time kept busy flapping their wings, walking about the nest and nearby branches and even managed to hop from nest to branch and from branch to branch. Later in the day, even as early as 9:00 A.M. they appeared to suffer from heat, and became less and less active, while their breathing seemed to become more rapid or possibly appeared so owing to the fact that the bill was held open and respiration was rather gasping. In spite of their great activity and their propensity for wandering around in the vicinity of the nest, the fledglings still retired to the nest to sleep.

Unfortunately it was impossible to continue observations beyond October 18 and thus to determine the exact date upon which the nest was left but judging by the great activity of the young birds it is probable that the period during which they might be expected to remain in the nest would not exceed two weeks at most.

University of California
at Los Angeles, Calif.





Clock itograph in weather case (closed) and set up below wren box, to which it is connected by wires.

THE MECHANICAL RECORDING OF THE NESTING ACTIVITIES OF BIRDS.¹

BY S. CHARLES KENDEIGH AND S. PRENTISS BALDWIN.

Plates XV-XVIII.

IN life history studies of birds much has been written by ornithologists concerning the behavior of birds at the nest, the raising of young, methods of feeding, song and call notes, migration, and other activities.

Collections of nests and eggs have determined for most species, the size, structure and make up of nests and the size, number per set, shape, and color of the eggs.

By collection of adult birds not only have birds been accurately described and the names and relationships determined, but much information is on record as to distribution, habitat, sex, migration, and plumage.

Observation or bird-watching in out-door active life, in their natural habits and activities, is a very valuable method of study; and where two or more people coöperate by alternate periods of observation at the nest, continuous records over many daylight hours have been obtained.

The introduction of bird banding has given these methods still greater value, since it is now possible to identify and follow more closely the behavior of the individual bird identified by the band.

Much remains to be learned concerning the life histories of birds. As yet, we do not know the complete life history of a single species. The more readily observed and apparent features of bird behavior have been noted, but the underlying physiological and psychological principles remain for more careful analyses.

One phase of bird activities, that of their attentivity to the duties of reproduction or the amount of time that the two sexes spend on and off the eggs or tending the young, has received considerable attention at this laboratory during the last five years.

¹ Contribution No. 18 of The Baldwin Bird Research Laboratory, Gates Mills, Ohio.

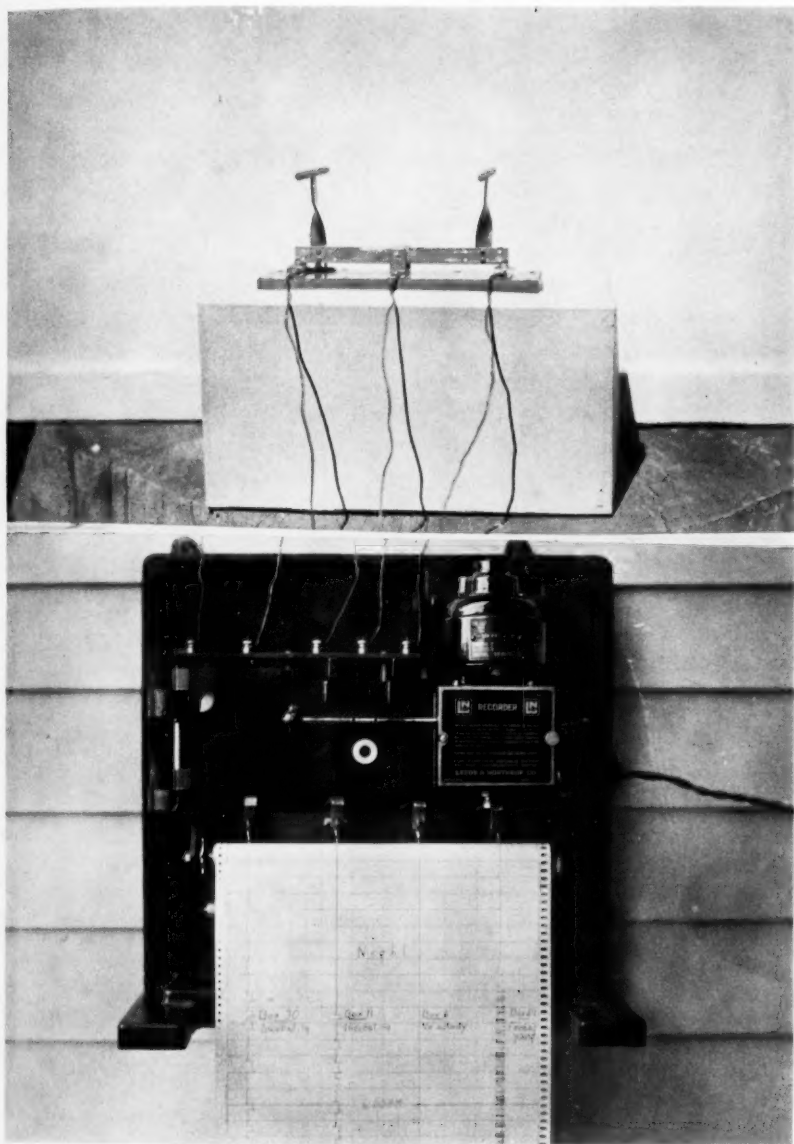
A report on attentive and inattentive periods in the House Wren was published in 'The Auk' (Vol. XLIV, No. 2, pp. 206-216, 1927). In that paper it was shown that the adult birds are not continuously attentive to the eggs, caring for the young, nest-building, or singing. Periods of such attentiveness alternate with periods when the birds are away getting food for themselves. It is obvious that the adult birds must maintain their own vital processes and their own lives as well as look after those of their offspring. From further study on other species, very interesting modifications of the type of attentivity from that found in the House Wren have been discovered, but this must wait till the future to be reported.

Two methods were described in the paper above mentioned, one by observation and the other by the use of thermocouples. These thermocouples, when placed in the nest and connected to a recording potentiometer, give a continuous record not only of every visit of the adult birds to the nest to incubate the eggs but also the duration of these visits and much of the activity while there. This is shown by means of temperature fluctuations in the nest caused by different movements of the adult birds. The advantage of this mechanical method of recording bird behavior is that it is accurate, time-saving, impersonal, and continuous both day and night. Observations alone could not produce such records.

Thermocouples may be inserted in almost any sort of nest, so that the exact amount of time that the adult birds incubate their eggs may be easily obtained. We have acquired such records from fifteen species of birds. This recording potentiometer is operated by electric current which drives about three feet of recording paper per day through the instrument, upon which the pen makes record.

A disadvantage is that the instrument does not record the visits of the adult birds to feed their young, as the adults then do not sit on the nest nor affect the temperature of the thermocouple. If the thermocouple is left in the nest after the eggs hatch, only an erratic record is obtained because of the constant shifting of position of the young.

To get the complete record of visits to the nest not only during incubation, but during the period of feeding young, another



A.—Itograph perches adapted for use on open nests; the two perches swing on a central pivot and make contacts below, the same as in the case of perches arranged for species nesting in boxes.

B.—Multiple itograph; for this the back and motor from a Leeds and Northrup recording potentiometer has been used to operate a wide paper, while the electromagnet and pens have been inserted on a special frame. In the figure, only four pens are shown, each connected to a separate nest, but lately three more pens have been added.



instrument has been devised which will record every visit of the adult bird to the nest from the first inspection of the box until the last young bird leaves and the nest is prepared for a second brood. The duration of these visits is recorded as accurately as before, and some of the bird's activities while at the nest may be interpreted.

Again we called upon our ingenious friend, Dr. Charles Baldwin Sawyer, President of the Brush Laboratories Company of Cleveland, to work out in detail in his shops, the apparatus which we came to call the "Wrenograph," because we used it at first to record the comings and goings of our Wrens.

As this instrument came to be used and adapted to other kinds of birds we have felt that a less facetious but more descriptive general name should be given to it, and we have called it the "itograph" from the root "*it*" (from the irregular verb *ire*, to go) as used in the words *exit* and *adit*. The itograph does not record temperature. This instrument in the more simple form, which we call the clock itograph (Pl. XVII, a), is not difficult to construct, and is easily transportable into the woods and fields anywhere, and attached to almost any nest. The only care necessary is a visit each morning to the instrument and sometimes to the nest to make sure that all is working well, and to make a few minor adjustments and notations. The success of the instrument with different species of birds and types of nests demands a little ingenuity.

With such species as the House Wren which almost always nests inside of cavities, or boxes when these are available, the mechanical recording of visits to the nests is not difficult, for each time the bird comes to the nest it must pass through a comparatively narrow entrance hole. Likewise, each time it leaves, it must pass in the reverse direction through the same opening. Thus it is apparent that some device at the entrance which will register the passage of the bird in either direction will record the visits to the nest.

After one or two preliminary unsatisfactory attempts, the following arrangement was found to be a success. As illustrated in the photograph (Pl. XVIII, b), two perches are used, one just outside the entrance hole, the other just within. The two perches

are connected and work in a see-saw manner, like a rocking beam, on a central pivot. By means of a wire spring the beam is in neutral position and the two perches are kept raised above supporting contacts directly beneath when no bird is on. The perches and the supporting contacts below on each side of the entrance are connected with a series of dry-cell batteries and with an electromagnet. On the electromagnet a pen is attached which bears upon a roll of paper unfolding continuously at a uniform rate. The electric connections are shown in fig. 2 (p. 475).

At once it is evident that when the adult bird comes to the nest in the box, it must first alight on the outer perch, pass through the entrance, and step on the inner perch before it reaches the nest. When it alights on the outer perch, its weight is sufficient to press down the perch so that it rests on the support below. This establishes a contact between the two, thereby closing an electric circuit, as is evident in fig. 2. When this electric circuit is closed the arm of the electromagnet with the attached pen moves in one direction—to the right (fig. 1). Then, when the bird leaves the perch, the contact is broken because the wire spring again raises the perch, the electric circuit is opened, and the pen works back to a neutral position. The same thing occurs when the inner perch is pressed down, except that here the electric flow is in the opposite direction due to a different relation of the plus and minus poles of the batteries. This causes the pen to move in the opposite direction—to the left. It is apparent, then, that when the bird enters the box, the recording pen will be pulled first to the right,

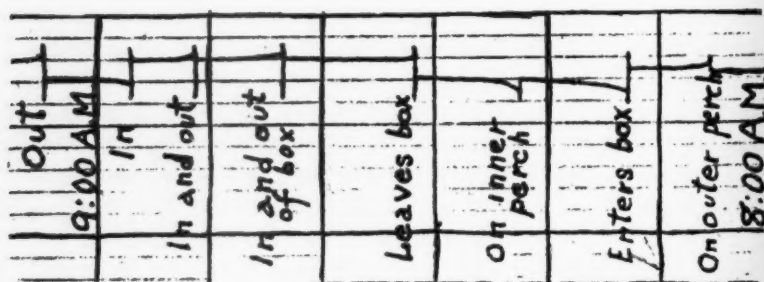
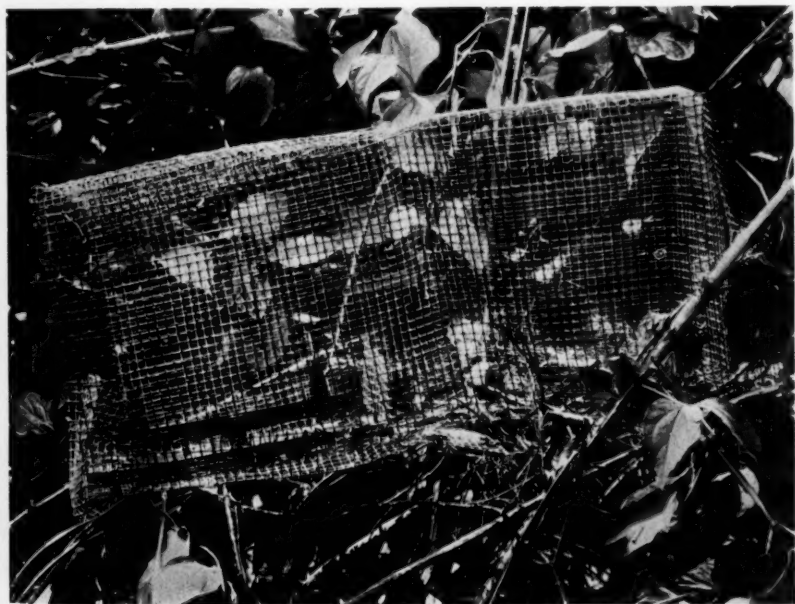
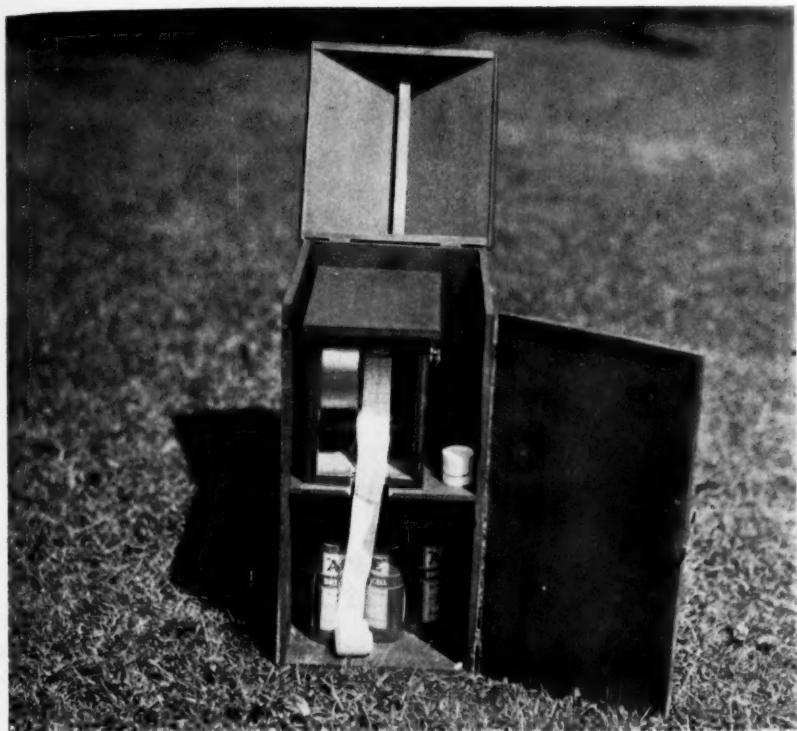


Fig. 1. Detail of record from clock itograph with interpretation of each movement of the pen.



A.—Clock itograph, complete, included in weatherproof outer box.

B.—Itograph perches arranged at an open nest (Catbird) showing position in short tunnel of wire mesh at left leading to enclosed nest at right. Adult birds enter and leave nest through tunnel alighting each time on two perches in turn.

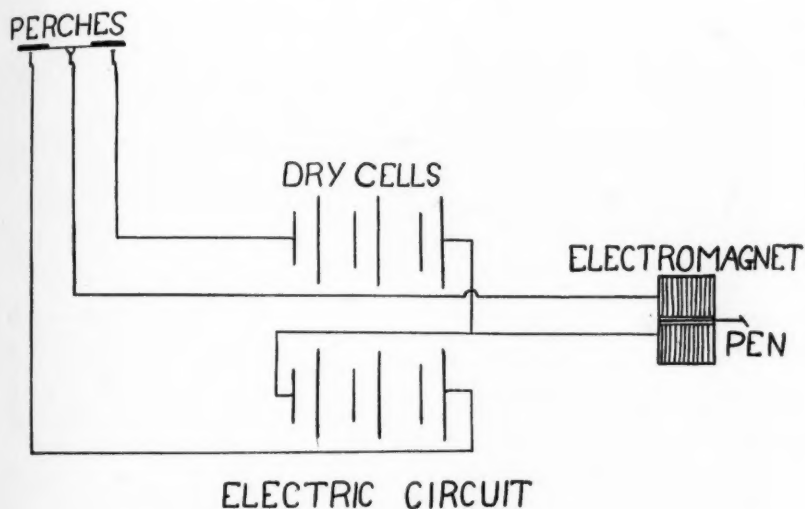


Fig. 2. Electrical connections between perches and itograph. The circuit is closed only when the weight of the bird depresses one or the other perch. The two perches close different circuits, thus drawing the pen to the right or left.

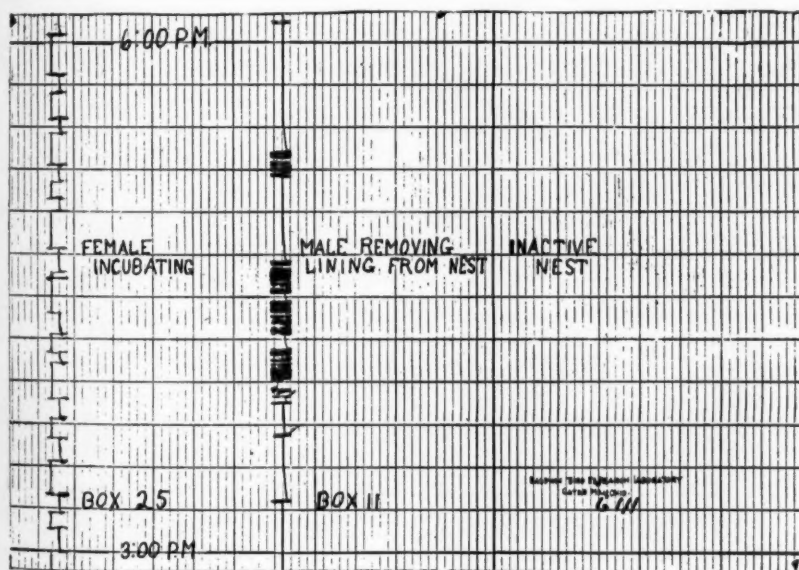


Fig. 3. Record from multiple itograph showing very characteristic record obtained when male wren actively removing lining at the completion of a first nesting—in anticipation of remating for a second time.

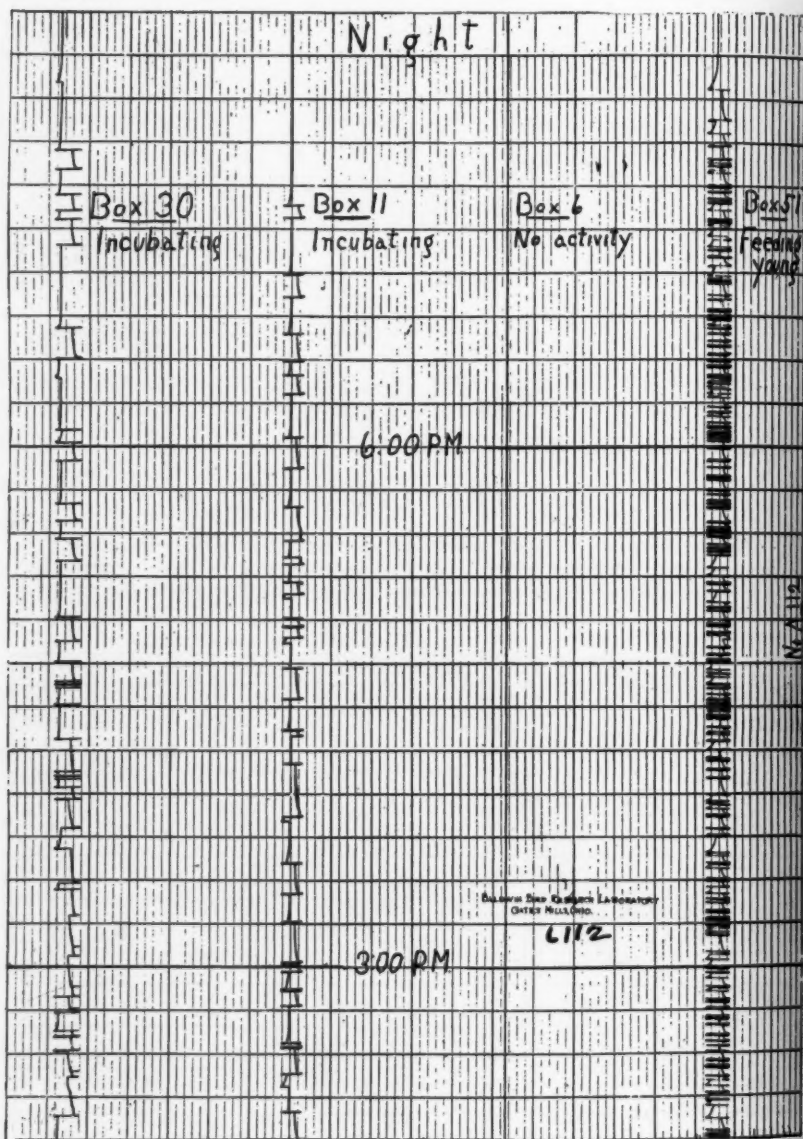
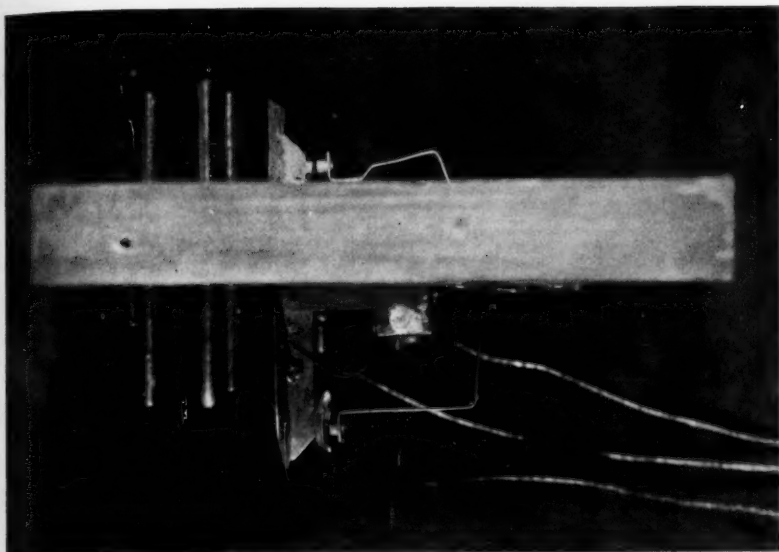
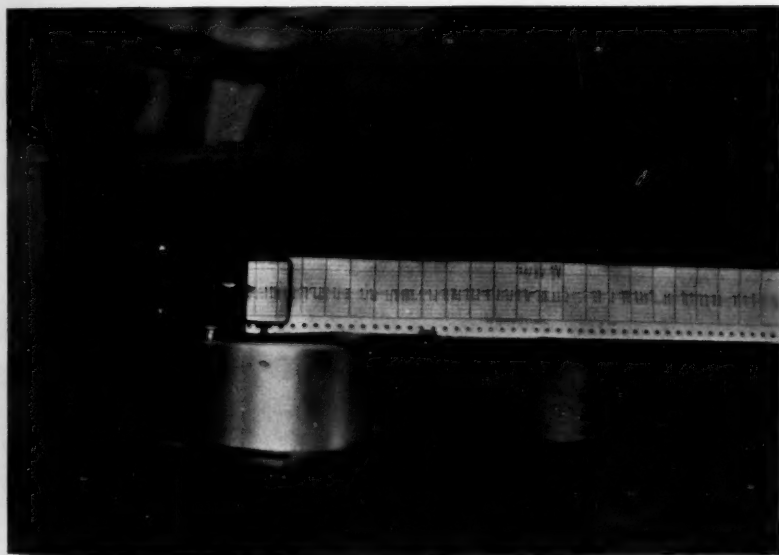
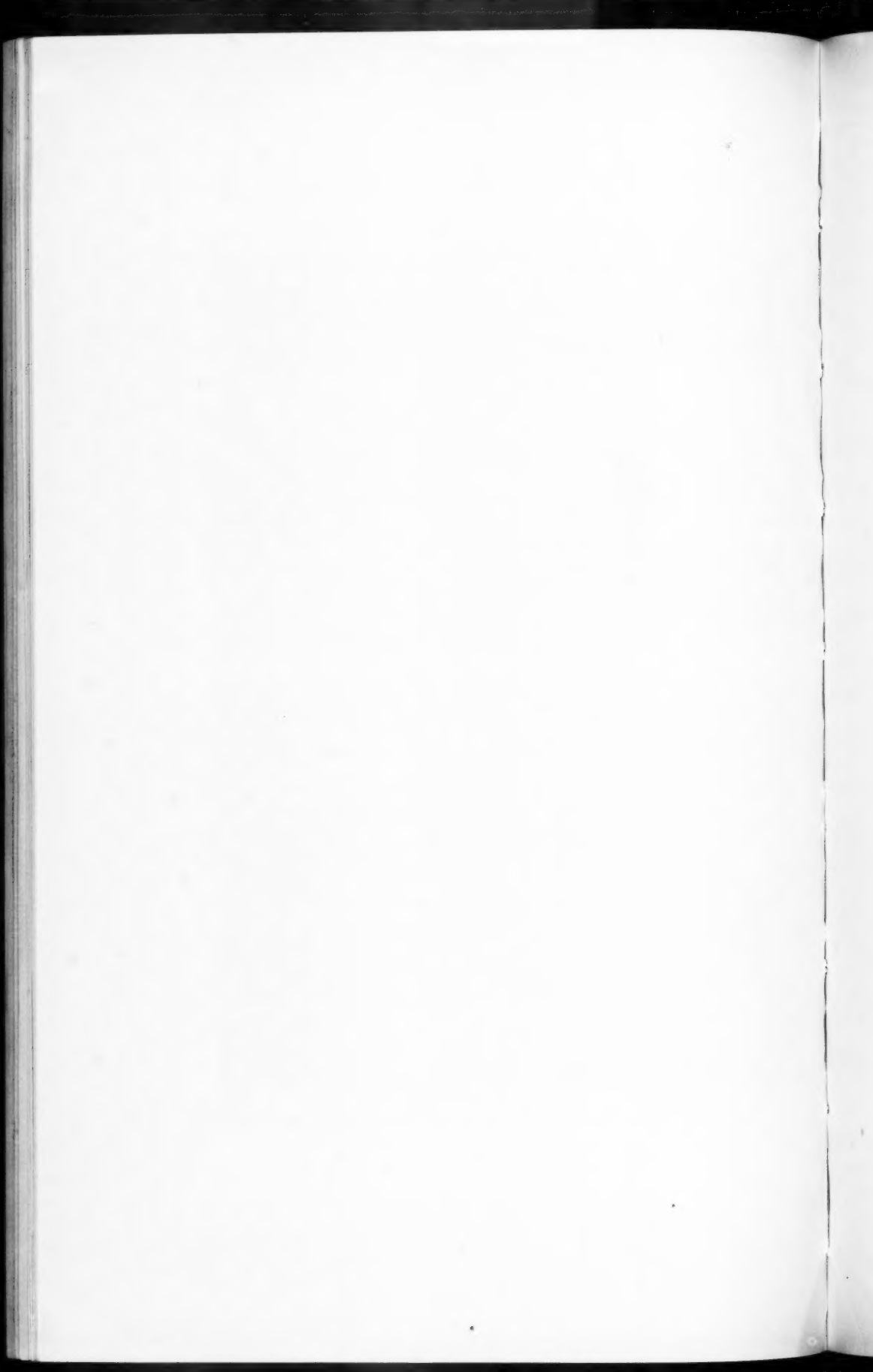


Fig. 4. Record from multiple itograph showing type of records obtained when birds (house wrens) incubating and feeding young. The distance between any two consecutive horizontal lines represents fifteen minutes.



A.—Clock itograph; inside on the left, a round casing enclosing a forty-eight hour clock which operates a spindle by which the paper is rolled off at the rate of about four feet per day; the pen is mounted on an arm controlled by an electromagnet operated by dry cells.
 B.—Front of wren box; on the left side is shown the outer perch and the electric connections on the outer side of the box; to the right, the inner perch, which is protected from contact with the nest material when in use by a metal cover. The projecting pegs above the perches are to prevent the bird from going into the opening without touching the perch.



and then to the left and then gradually work back to a neutral position. It is important that the pen should not jump back to neutral, but rather drag gradually back as in that way it shows which is the last perch used by the bird. Likewise, when the bird leaves the box, it steps first on the inner perch, then the outer, so that the pen moves, in this case, first to the left, then to the right. Thus in the record obtained, it is evident at once whether the bird has just entered or left the box.

Portable Itograph.—In the portable itograph, as shown in the photographs, everything is compact. A 48-hour clock is used to unwind a narrow strip of paper and on this the pen works (Pl. XVIII, a). As the paper is unrolled, a continuous record is formed of all visits which the adult birds make to the nest. The recording instrument is placed on a shelf in a small protective weather-proof box (Pl. XVII, a). The set of batteries is directly below, and the strip of paper runs down the front of the box through a slit in the shelf into an empty space in front of the batteries. When finally set up, the front of the box is closed, the roof is lowered, and thus left ready to operate (Pl. XV). Since no human being is around and the birds soon become accustomed to the presence of the box and perches, as natural a record as is probably possible to obtain results.

When it is reasonably certain that a pair of birds will nest at a certain box, the instrument may be adjusted before nest-building is begun and left as long as desired so that a complete record running all through the nesting life is obtained. Where large numbers of boxes are under observation and many are in use at the same time, it is usually practicable to wait until nesting has begun, then take down the box, transfer the nest and its contents to an itograph box with the connections already arranged, and fasten the new box in the position of the old. Adult Wrens come back within a few minutes and accept the new box with very little hesitancy.

Multiple Itograph.—The type of itograph described above is portable, a feature we have gone to some trouble to obtain. However, it records the activities at but one nest at a time. Another instrument records from seven different nests simultaneously on a wide strip of paper (Pl. XVI, b and figs. 3 and 4, pp. 475-476). The principle of its operation is much the same except that instead

of but one electromagnet and one pen, there are seven electromagnets set up in the same supporting case. Also, instead of a clock to unroll the paper, it has an electric motor. This fact, in addition to its size, weight and cumbersomeness, does not permit ready movability. However, the distance from the nests to the instrument may be of any desired length, so that the instrument may be set up in the center of the field of activities at the beginning of the season and several nests connected to it at various times. This instrument we have called our *multiple* or *stationary itograph*.

Itograph on Open Nests.—When one comes to record the visits of adult birds to open nests, as those of Catbirds, such a box arrangement as is used with the House Wren will not work. The same principle of having two perches, making two different electric contacts when the bird comes to the nest or leaves, is still practicable, however. All that is necessary, is to adapt the perches. One such adaptation which has proved very successful is illustrated (Pl. XVI, a). To use this perch it is necessary to train the birds to approach and leave the nest each time by the same route. The adoption of a single route to the nest is quite normal with birds even when there is no human interference. To aid this, all sides of the nest except one are enclosed in wire mesh. Then it is also advisable to build a short tunnel on the open side so that the bird cannot possibly avoid this route to and from the nest. The perches are then placed in this tunnel in such a position that the bird must alight on them as it visits the nest (Pl. XVII, b).

One may think that so much structure may frighten the birds and that the normal nesting behavior will be disturbed. So far, we have used this perch arrangement on three different open nests of three species—Catbird, Robin, Phoebe—and each attempt has been successful—in fact even more successful than was at first hoped. The records obtained on both portable and stationary itographs have been excellent, and from all appearances the behavior has been normal. The young in every case left the nest normally, the feeding of the young by the adults was regular, and the birds became quite accustomed to the perches. So far, we have not attempted this set-up on open nests until the eggs have hatched. Also the set-up is not arranged all at once, but a step at a time. For instance, with the Catbird, the wire mesh enclosure open only

on one side was placed at the nest on the day that all the eggs hatched, the tunnel was made on the open side the next day, while it was not until the third day that the perches were placed in and the final connections established. It was made certain at each step that the birds were behaving normally before the next addition was made. Also, from observations beforehand it was determined which side of the nest the birds approached most frequently. After the final adjustment had been made, the adult birds returned within ten minutes and a normal record was obtained for the rest of the nesting period.

It has been generally assumed by most ornithologists hitherto, that birds will not permit visits to their nests or interference in their nesting activities without desertion. This is not entirely justified. It is the regular practice at this laboratory to visit and work with the available nests of all species occurring on the premises. In a few cases, it is true, this has caused the birds to desert, but in the great majority of cases not. There is a difference between species in the amount of interference which they will tolerate. With the House Wren, almost anything can be done with the birds or nests at any stage with the assurance that not over ten per cent of the experiments will be unsuccessful by reason of desertion of the birds. The House Wren is an exceptionally easy species with which to work.

Nevertheless, we have been successful in obtaining good temperature records and records of attentivity by placing thermocouples in the nests of the following species of birds:

Number of Nests		Number of Nests	
House Wren	20	Flicker	1
Robin	4	Mourning Dove	4
Bluebird	2	Killdeer	2
Catbird	2	Cardinal	1
Purple Martin	1	Goldfinch	1
Song Sparrow	4	Phoebe	1
Yellow Warbler	1	Domestic turkey (wild nest) . .	1
Crested Flycatcher	1		

Itograph box perches have been successful as follows:

House Wren	35 nests
Bluebird	3 nests

Open nest itograph perches have been successfully arranged for:

Robin.....	1 nest
Phoebe.....	1 nest
Catbird.....	1 nest

Birds are undoubtedly most sensitive to interference during the nest-building and egg-laying periods. At this time they will sometimes desert at the slightest provocation so that discretion must be used. As incubation proceeds they become more faithful to their nests, and after the eggs are hatched, considerable disturbance, is necessary to make them desert.

The Chipping Sparrow and Cedar Waxwing are the only two species with which we have found it difficult to work and desertions in these species are frequent.

Birds also differ individually in the extent of interference which they will stand. Even some individual House Wren will endure more than others.

It has been the common experience of ornithologists that when birds desert their nests for whatever reason, they begin a new one in the immediate vicinity within a very short time. The normal amount of reproduction for the season is therefore maintained, although for these particular birds, the nesting period is slightly prolonged. An occasional unsuccessful attempt at nest experiments is no cause for alarm or discouragement, and the information obtained from these more intensive studies of life history is of considerable value. It is from this point of view that the use of the instruments described above has been suggested. It is hoped that they will be of some interest to bird students.

Gates Mills, Ohio.

THE RABIÉ PAINTINGS OF HAITIAN BIRDS.

BY ALEXANDER WETMORE.

Plates XIX-XXII.

THE Blacker Library of McGill University, through the interest of Dr. Casey Wood, has recently acquired a series of water color paintings depicting the flora and fauna of Haiti, made in the latter part of the eighteenth century by M. de Rabié, which are of considerable interest to ornithologists because of their early record of a considerable number of the interesting birds of the Haitian Republic. The drawings in question were sent to me for examination a short time ago through the courtesy of the firm of Wheldon and Wesley of London, to assist in my studies of historical records pertaining to Hispaniola. The notes made on the birds are here published at the request of Dr. Wood who has desired that the ornithological data in this unique and hitherto unknown set of Americana be placed definitely on record where it might be readily available to those interested.

The series of paintings which includes fruits and vegetables of various kinds, insects, fishes, crustaceans, and mollusks, as well as birds, is at present bound in four volumes of which one is devoted to birds. According to an inscription in the front it is devoted to a "Collection des oiseaux de St. Domingue peints d'après nature par M^r. de Rabié, maréchal de camp, ingénieur en chef de la partie du nord de St. Domingue, mort à Paris, en 1785." The drawings of birds are marked in most cases as made "au Cap," which would signify Cap-Haïtien, except one which is labeled Fort Dauphin, and are dated from December 29, 1773 to August 19, 1784. Apparently the interest of Rabié in this work was aroused in 1771 during a sea journey, since some of his fishes are dated for that year. Apparently he was long resident in the French colony of Haiti since Moreau de Saint-Méry in the first volume of his *Description, etc.*, "de la Partie Francaise de l'Isle Saint-Domingue," published in 1797 (p. 330) has an account of Cap-Haïtien in which he describes an elaborate fountain constructed in 1769 under the direction of "M. Rabié, ingénieur."

In another place (p. 337) he notes a doorway to a church, completed in 1774 "élevé sur les plans & la direction de M. Rabié, mort ingénieur en chef de la Partie du Nord" and further (p. 424) records a structure begun in September, 1752, under plans prepared by Rabié. It appears that Rabié was long associated with the colony.

The fifty-eight plates devoted to birds are bound in a volume 10½ by 12½ inches, the binding being old with a sticker on the inside of the front cover that reads:

Aux deux creoles
Rue du Faub. St. Honoré, No. 60.
De La Rue, Rapetier.
Fabrique toutes sortes de Registres & Portfeu.
Fourniture de Bureaux
Tient tout ce qui à rapport au Dessin à la Pein^{re}.
à Paris.

Some of the paintings had become frayed at the edges before binding and have had the margins trimmed. In its present arrangement the drawings have been renumbered, and where part of the original inscription on the back is missing this has been carefully copied so that the entire wording has been preserved.

The birds, the majority being natural size, are shown in life-like attitudes in many cases with a landscape background. Though some are in stilted postures most of them are excellent both in form and color. Though the common birds of the island are mainly those represented there may be mentioned a Herring Gull (no. 37) the only record of this species for the island, a peculiar Goatsucker, *Antrostomus cubanensis ekmani* (no. 14) which was not described scientifically until 1929, and the Diablotin (no. 42). The majority of the paintings have obviously been taken from living individuals, and may in my opinion be accepted as definite early records for Haiti of the species represented at the localities and dates indicated.

The following list gives the plates in order, with the scientific and common names followed by a literal transcript of the inscription written on the back, where necessary accompanied by an explanatory statement by the present writer.

No. 1. *Mellisuga minima vielloti* (SHAW). HISPANIOLAN Vervain

LE PLONGEON.



WEST INDIAN GREBE.
Colymbus dominicus dominicus.



HUMMINGBIRD.—Oiseaux-mouches, mâle et femelle, leur nid, leurs oeufs, de grandeur naturelle. Sur une branche de caféyer. Nest with two eggs of usual hummer type.

No. 2. *Anthracothorax dominicus* (Linnaeus). HISPANIOLAN MANGO HUMMINGBIRD.—Colibris, mâle et femelle, de grandeur naturelle.

No. 3. *Columba leucocephala* Linnaeus. WHITE-CROWNED PIGEON.—Ramier à tête blanche, de saline, grandeur naturelle. Le 7 juin 1775.

No. 4. *Columba squamosa* Bonnaterre. SCALED PIGEON.—Le Ramier, de grandeur naturelle.

No. 5. *Columba livia domestica* Linnaeus. DOMESTIC PIGEON.—La nonette, grandeur naturelle. (Nun with white head, tail, and ends of primaries.)

No. 6. *Amazona ventralis* (Müller). HISPANIOLAN PARROT.—Le Perroquet, grandeur naturelle.

Marked also no. 14 perroquet de St. Domingue grand nat. Cap le 10 juin, 1777 Rabié.

No. 7. *Aratinga chloroptera chloroptera* (Souancé). HISPANIOLAN PAROQUET.—La Perruche, grandeur naturelle.

No. 8. *Todus subulatus* Gray. HISPANIOLAN TODY.—Le Perroquet de terre, grandeur naturelle. Marked also no. 39, perroquet de terre, grand nat., au cap le—1770 Rabié.

No. 9. *Mimus polyglottos dominicus* (Linnaeus). HISPANIOLAN MOCKINGBIRD.—Le Rossignol, grandeur naturelle.

Marked also le Rossignol grand nat. au Cap le 23 juin 1777 Rabié.

No. 10. *Petrochelidon fulva fulva* (Vieillot). HISPANIOLAN CLIFF SWALLOW.—La Petite hirondelle fauve, grandeur naturelle.

No. 11. *Phaenicophilus palmarum palmarum* (Linnaeus). HISPANIOLAN PALM TANAGER.—Le Lory-diamant, grandeur naturelle.

Marked also no. 46 le lory diamant grand nat. au cap le 26 juillet 1783.

No. 12. *Buteo jamaicensis jamaicensis* (Gmelin). WEST-INDIAN RED-TAILED HAWK.—La Buse, appelée à St. Domingue mal-fini à moitié de grandeur naturelle. Marked also, in pencil, no. 46 La buse appelee à St. Domingue mal fini Moitié de grand nat. le 28 juillet 1783.

No. 13. *Falco sparverius dominicensis* Gmelin. HISPANIOLAN SPARROW HAWK.—Female. L'épervier, emouchet, ou tiercelet, aux 4/3 de grand natur. au cap le 10 juin 1777.

No. 14. *Antrostomus cubanensis ekmani* Lönnberg. HISPANIOLAN GOATSUCKER.—(See Plate XXII). Le Peut-on voir, ainsi nomme, parcequ'il semble Dire Peut-on voir, quand il a chanté.

Also marked no. 53. Le peut-on voir, ainsi apelle parcequ'il semble dire peut-on voir, quand il a chanté. grand. nat. Cet oiseaux vit de divers qui le trouve dans le Bois pourri et d'autre insectes, au cap. Size, color of the back, and the buff tips on the lateral rectrices indicate certainly that the bird represented is this form and not the Chuck-wills-widow. As noted previously this race was not described scientifically until 1929.

No. 15. *Corvus palmarum palmarum* Württemberg. PALM CROW.—Le corbeau, grandeur naturelle. au cap le 10 juillet 1775—Rabié. Identification based on size since the figure is too small for *C. leucognaphalus*.

No. 16. *Crotophaga ani* Linnaeus. ANI.—Le Bout de tabac, grandeur naturelle. au cap le 7 juin 1775 Rabié.

No. 17. *Coccyzus minor teres* Peters. MANGROVE CUCKOO.—Le taco ou pie grand. nat. le 7 juin, 1775 Rabié.

No. 18. *Holquiscalus niger niger* (Boddaert). HISPANIOLAN GRACKLE.—Le merle, grandeur naturelle.

No. 19. *Chrysoperes striatus* (P. L. S. Müller). HISPANIOLAN WOOD-PECKER.—Le charpentier, de grandeur naturelle. au cap le 25 8bre 1775.

No. 20. *Zenaida zenaida zenaida* (Bonaparte). ZENAIDA DOVE.—La tourterelle, de grandeur naturelle. Le 5 juin, 1775.

No. 21. *Chamaepelia passerina insularis* (Ridgway). CUBAN GROUND-DOVE.—L'ortolan, de grandeur naturelle. au cap le 4 juin, 1778. Date written in pencil and indistinct, possibly not as given.

No. 22. *Oreopeleia montana* (Linnaeus). RUDDY QUAIL-DOVE.—La perdrix, de grandeur naturelle. fait au cap le 25 8bre 1775 Rabié.

No. 23. *Mimocichla ardosiacea ardosiacea* (Vielliot). HISPANIOLAN THRUSH.—La grive, de grandeur naturelle. au cap le 28 juillet 1777, Rabié.

No. 24. *Numida galeata* Pallas. GUINEA HEN.—jeune pintade, aux 3/4 de grandeur naturelle 1775. A partly albino individual.

No. 25. *Vireo olivaceus olivaceus* (Linnaeus) (= *V. calidris*).—JAMAICAN VIREO.—Le pierrot—quibic, grandeur naturelle. Voyerbaraire, au cap. 16 juin, 1783.

No. 26. *Tiaris olivacea olivacea* (Linnaeus) ♂. YELLOW-FACED GRASSQUIT.—Oiseau à Canne, grandeur naturelle au cap le 27 8bre, 1775.

No. 27. *Dendroica dominica dominica* (Linnaeus). YELLOW-THROATED WARBLER.—Oiseau à Canne, grandeur naturelle. au cap le 27 8bre, 1775. Rabié.

No. 28. *Seiurus noveboracensis* (Gmelin). WATER-THRUSH.—L'hermine, oiseau à canne, grandeur naturelle. au cap le 28 8bre, 1775, Rabié.

No. 29. *Mniotilta varia* (Linnaeus). BLACK AND WHITE WARBLER.—Le spectre, oiseau à canne, grandeur naturelle. au cap 13 8bre, 1775, Rabié.

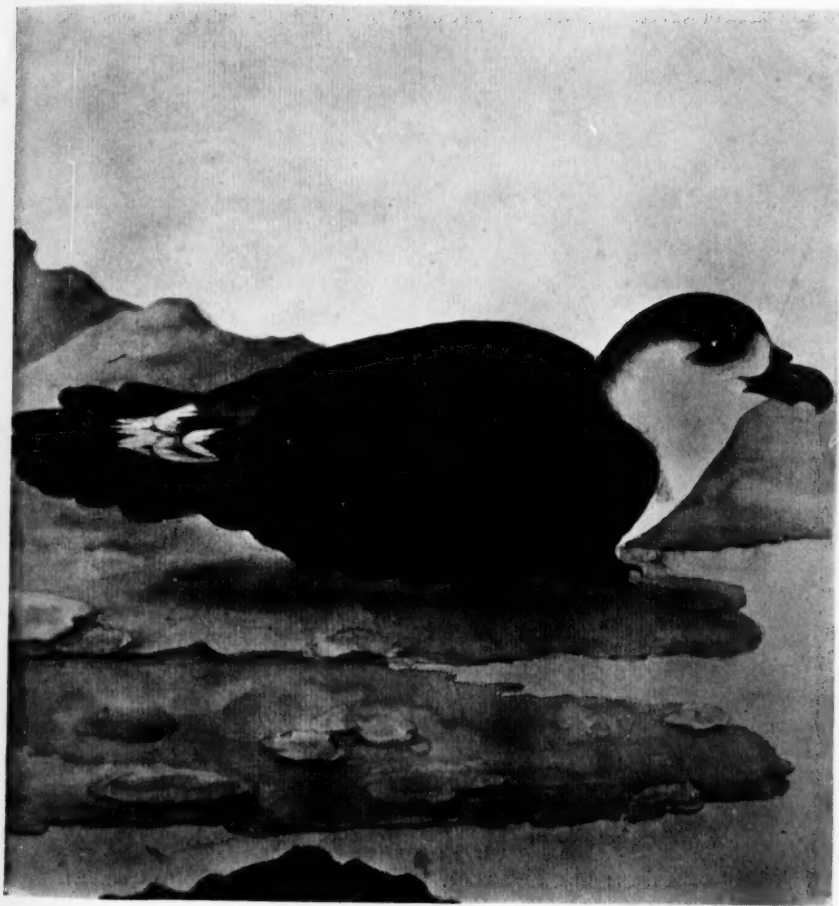
No. 30. *Dulus dominicus dominicus* (Linnaeus). PALM-CHAT. L'esclave, grandeur naturelle. Fait au cap le 14 8bre, 1775, Rabié.

No. 31. *Cairina moschata* (Linnaeus). MUSCOVY DUCK.—Le canard musqué, au 1/3 de grandeur naturelle. au cap le 25 Aout, 1777, Rabié. Male, partially albino, evidently a domesticated bird.

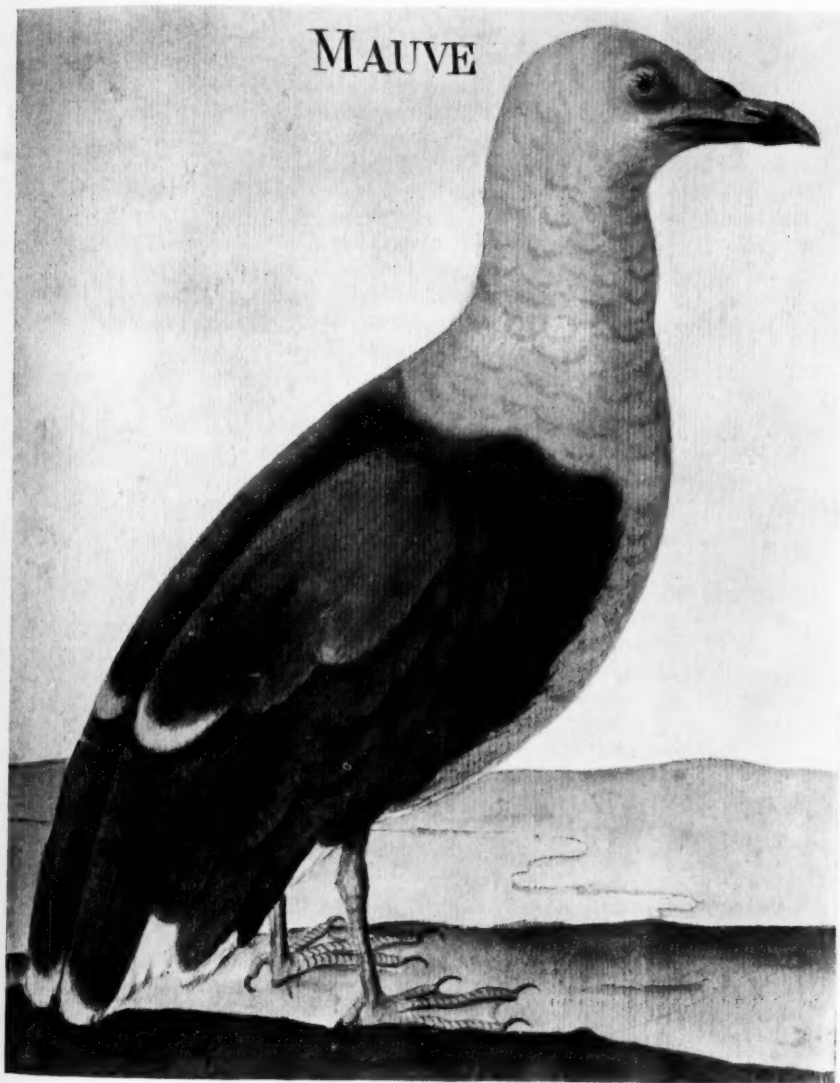
No. 32. *Dendrocygna arborea* (Linnaeus). WEST INDIAN TREE-DUCK.—Le gingeon, Rabié.

No. 33. *Querquedula discors* (Linnaeus). BLUE-WINGED TEAL.—La Sarcelle.

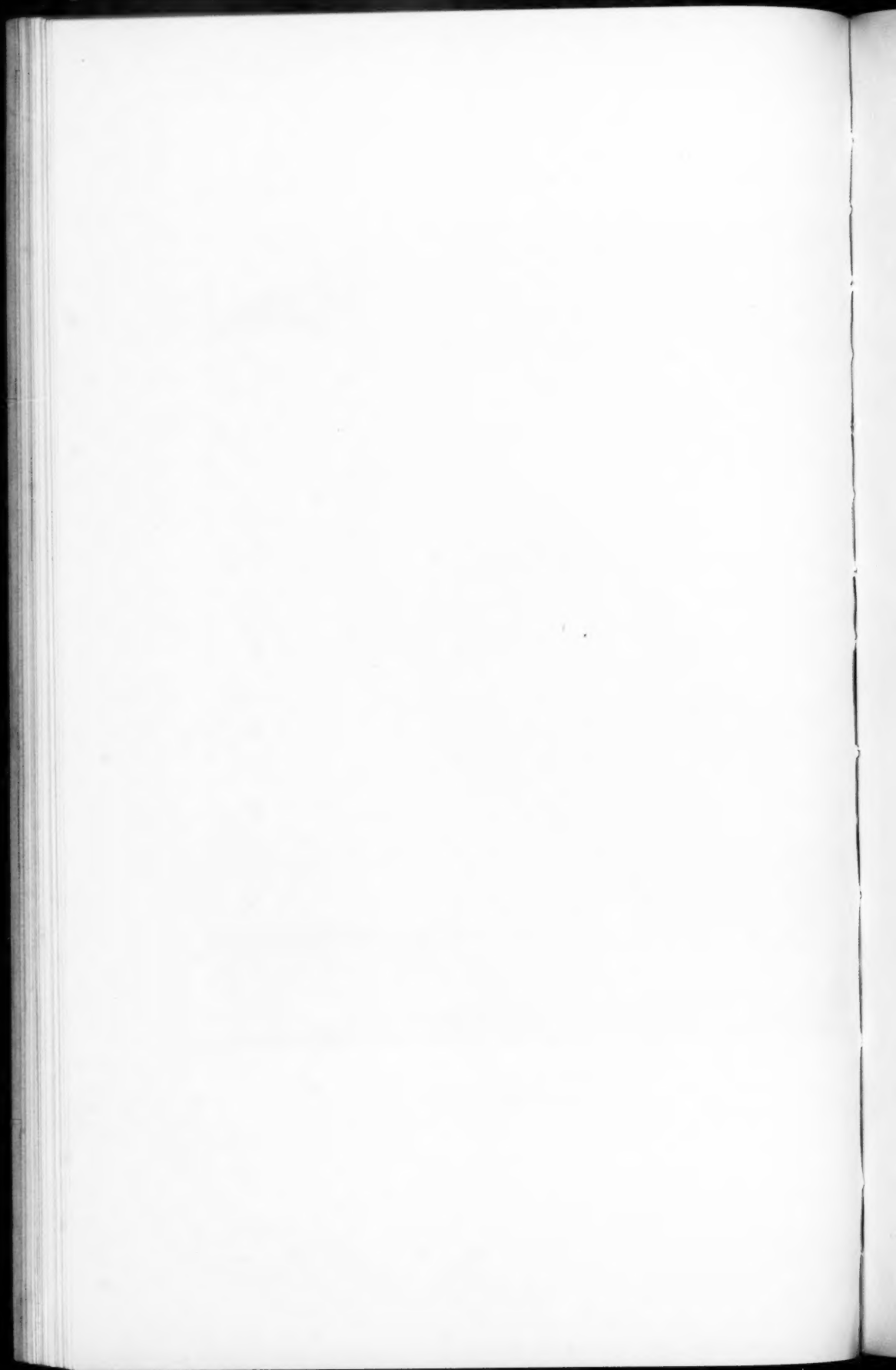
No. 34. *Phoenicopterus ruber* Linnaeus. FLAMINGO.—Le flamand, ou Becharu, au 1/5 de grandeur naturelle. Also marked no. 38 flaman ou



BLACK-CAPPED PETREL.
Pterodroma hasitata.



HERRING GULL.
Larus argentatus smithsonianus.



Becharu, peint d'après nature, au cinquième de grand nat. au cap le 26 May, 1783. Rabié.

No. 35. *Colymbus dominicus dominicus* Linnaeus. WEST INDIAN GREBE.—(See Plate XIX). Le Plongeon, femelle. Cet oiseau a un grand amour pour ses petits, lorsqu'elle le voit en Danger, elle les cache sous ses ailes et plonge avec rapidité, elle ne les abandonne même pas lorsqu'elle es morte.

As these Grebes carry their young on the back like other species of the family the attempt on the part of the artist to portray what was evidently a habit known only from hearsay is highly amusing.

No. 36. *Ajaia ajaja* (Linnaeus). ROSEATE SPOONBILL.—La spatule, à moitié de grandeur naturelle. au cap le 3 juin 1783, Rabié.

No. 37. *Larus argentatus smithsonianus* Coues. HERRING GULL.—(See Plate XXI). La mauve, au 2/3 de grandeur naturelle. au cap le 7 Juillet, 1775. An adult bird in full adult plumage. This is the only record known for Hispaniola for this species.

No. 38. (?) *Thalasseus sandvicensis acuffavidus* (Cabot). PROBABLY CABOT'S TERN.—La Mouette, espece de mauve, grandeur naturelle.

Drawn with clear yellow bill and black legs, but otherwise with size and color of Cabot's Tern.

No. 39. *Phaëthon lepturus catesbyi* Brandt. YELLOW-BILLED TROPIC-BIRD.—Espece de mouette, aux 3/4 de grandeur naturelle, ces oiseau Marche avec peine et en s'aubittant [spelling not certain] au cap le 1^{er} May, 1784, Rabié.

No. 40. *Pelecanus occidentalis occidentalis* Linnaeus. BROWN PELICAN.—Le Pelican, ou grand-gosier, au 1/3 de grandeur naturelle de l'extremite du bec, à cette de la queue, 4 pieds de longueur. Au cap le 8 aout, 1782. A bird in immature plumage.

No. 41. *Fregata magnificens* Mathews. FRIGATE-BIRD.—La frégate, au 1/4 de grandeur naturelle, six pieds six pouces. d'envergure. Au cap le 29 juillet 1783. An immature bird with pure white head.

No. 42. *Pterodroma hasitata* (Kuhl). BLACK-CAPPED PETREL.—(See Plate XX). Le Diablotin, au 2/3 de grandeur naturelle. au cap le 26 Sbre, 1778, Rabié. An excellent representation of this bird.

No. 43. *Sterna antillarum antillarum* (Lesson). LEAST TERN.—L'alouette de mer, de grandeur naturelle. Au cap le 7 aout, 1783 Rabié.

No. 44. *Jacana spinosa violacea* (Cory). WEST INDIAN JACANA.—Le chirurgien, ainsi nomme parcequ'il a deux especes de Lancette à l'épaule.

No. 45. *Aramus pictus elucus* Peters. LIMP KIN.—La poule à joly 1/2 de grandeur naturelle.

No. 46. *Butorides virescens maculatus* (Boddaert). WEST-INDIAN GREEN HERON.—Petit-crabier, espece de héron, aux 2/3 de grandeur naturelle. au cap le 19 aout 1784. An immature bird.

No. 47. *Guara alba* (Linnaeus). WHITE IBIS.—Le Pêcheur, 1/2 de grandeur naturelle. au cap le 27 May 1775, Rabié. An immature bird with head and neck brown.

No. 48. *Plegadis falcinellus falcinellus* (Linnaeus). GLOSSY IBIS.—Le Pêcheur, espece de courli, 1/2 de grandeur naturelle. Rabié fait le 18, 7bre 1775. An adult bird.

No. 49. *Guara alba* (Linnaeus). WHITE IBIS.—Autre Pêcheur, aux 2/3 de grandeur naturelle. ces pêcheurs habitent les mangles au bord de la mer, et vivent de petits poissons, de crabes, et d'écrevisses. Au cap le 13 juillet 1783 Rabié. A young bird barely grown, with banded bill.

No. 50. *Charadrius semipalmatus* Bonaparte. SEMIPALMATED PLOVER.—Le collier, de grandeur naturelle. Au cap le 1^r aout, 1783, R—.

No. 51. *Ereunetes* sp. Le marengouin, de grandeur naturelle. Aux cap le 29 xbre, 1773. Species not certain.

No. 52. *Himantopus mexicanus* (Müller). BLACK-NECKED STILT.—Le chevalier 1/2 de grandeur naturelle. Cet oiseau n'est palmé que du côté des ongles extérieurs, il vit de petits poissons au fort dauphin 1^r aout, 1783.

No. 53. *Nycticorax nycticorax hoactli* (Gmelin). BLACK-CROWNED NIGHT HERON.—Le Crabier. An immature bird.

No. 54. *Florida caerulea caerulescens* (Latham). LITTLE BLUE HERON.—Crabier blanc, 1/2 de grandeur naturelle. An immature bird in white dress with legs dull green and indication of downy tips on feathers of crown.

No. 55. *Ardea herodias adoxa* Oberholser. WEST INDIAN GREAT BLUE HERON.—Grand crabier, dit jacob, espece de héron au 1/3 de grandeur naturelle, 4 pieds, six pouces de l'extrémité du bec à celle des pieds. Au cap, le 4 aout 1784 Rabié. An immature bird.

No. 56. *Casmerodius albus egretta* (Gmelin). AMERICAN EGRET.—Heron blanc, de trois pieds de haut. Also marked heron blanc de St. Domingue de trois pieds de haut. fait le 16 May, 1775 Rabié.

The bill is yellow, and the legs black.

No. 57. *Nycticorax nycticorax hoactli* (Boddaert). BLACK-CROWNED NIGHT HERON.—Le jacobin, 1/2 grandeur naturelle.

No. 58. *Ionornis martinicus* (Linnaeus). PURPLE GALLINULE.—La Poule d'eau, grandeur naturelle. Also marked no. 5, Poule d'Eau de St. Domingue grand nat. le 28, May 1775 Rabié.

*U. S. National Museum,
Washington, D. C.*



HISPANIOLAN GOATSUCKER.
Antrostomus cubanensis ekmani.

SOME STUDIES OF THE AMERICAN DIPPER OR WATER OUZEL.

BY CLYDE E. EHINGER.

FOR years one of the writer's most cherished ambitions in the avian field, has been to obtain a practical first-hand acquaintance with that unique water sprite, the Dipper or Water Ouzel. This consuming desire was chiefly excited by reading in John Muir's work 'The Mountains of California,' the chapter on the Water Ouzel. There may be chapters on the life and habits of a bird that are as gripping and couched in as beautiful and fitting language as that, but I must say that it has not been my good fortune to discover such a one. It is in very fact an avian classic and deserves the widest reading.

In the winter of 1922 my wife and I made a journey to the Pacific Coast. Among other stops made on this trip was a visit to Yosemite National Park. While traveling along the Merced River, just before reaching the El Portal entrance to Yosemite Valley, we had our first view of the Water Ouzel in the rapid currents of the river. Upon reaching our quarters in the Sentinel Hotel, in Yosemite Village, we were delighted to see Ouzels in the same river, from our window.

Our next Ouzels were found in the cold streams flowing through the ranch owned by a friend, Mr. S. Edward Paschall, about twenty-five miles from Seattle, Washington, where we remained more than three years, building a cabin of our own near these streams.

The winters of 1922 and 1923 were not remarkable for the number of Ouzels seen or songs heard, but the fall and winter seasons of 1924 and 1925 were unusually favorable for observing the bird, owing to the heavy rains which resulted in the highest water known there in years; and made possible the greatest salmon run within the memory of the present inhabitants. These swollen streams made fine spawning beds for the salmon, and their eggs offered great attraction to the Ouzels because of their fondness for this kind of diet. In many places the salmon eggs could be seen in great masses along the bottom of the streams.

For those not acquainted with the habits of the salmon it may be well to explain that they seem to make every effort to go as far up the streams as possible for their spawning, and that no adult salmon,—male or female—ever returns to salt water. All die at or near the site of the spawning beds. This creates a condition that demands a proper disposal of enormous quantities of dead fish. The small group of people on this ranch property found it necessary to bury—during this one season—more than five hundred salmon, averaging somewhere in the neighborhood of ten pounds each. But for frequent freshets which carried large numbers of the dead fish back to salt water, the task of disposing of these large numbers within a comparatively small area in the ranch property, would have been very much more difficult.

For the sake of greater accuracy, I may state that the site of these observations was mainly on or near "Hidden Ranch," Kitsap County, Washington; at a point about midway between Kitsap and Wildcat Lakes, some two miles west of the village of Chico, which is situated on Dye's Inlet of Puget Sound. Here in a small valley was the junction of two clear streams: one, Lost Creek, having its source in the Blue Hills, the other, Wildcat Creek, whose source was Wildcat Lake. The confluence of these streams was on the Hidden Ranch property, and formed Chico Creek which was in close proximity to the Ranch houses. It was here that my many hours of intensely interesting observations were spent which form the basis of this paper.

The literature concerning this bird seems scanty when it is realized that its striking peculiarities and interesting history have, in the main, been known for a considerable period. In this connection it seems worth while therefore to allude to a recent illustrated popular article in 'Nature Magazine' of September 1928: 'The Bird of Spray and Water—The diving Thrush Who Nests Near Falls and Rapids.' by Frank H. Knowlton. Among other interesting features of this paper, the ancient lineage of this bird is stressed and in a somewhat detailed way brought down to the present time. The beautiful illustrations which accompany it were made by William L. and Irene Finley, those intrepid and tireless expositors of the outdoor life of America. This article is a fine example of popularization of the best type, by such universally recognized scientists.

'The Auk' of April 1927, contains a paper on 'Some Observations On the Water Ouzel' by A. H. Cordier M.D., a valuable experience with a pair of nesting Ouzels in Colorado, touching upon some of the mooted points concerning these birds, and seems to present some real contributions to the discussion concerning the structure and movements of the eyelids and the nictitating membrane.

In 1924, the year of the big salmon run in Hidden Ranch Valley, the Ouzels first appeared on September 8, the earliest record for this location. This early appearance may have been due to the enormous salmon run. It was a common sight to see the Ouzels eating the salmon eggs, and this was evident throughout the season.

Perhaps it may be well to pause here and consider the accusations brought against these birds, of eating fish fry, salmon, trout and other fish spawn. As to salmon eggs our observations prove without question that the Ouzels are fond of them, but they did not show any tendency to *confine* themselves even largely to this food, and because of their solitary habits and absence of gregarious tendencies, this seemed to us negligible.

In his book 'The Wonder of Life,' J. Arthur Thomson comments on the prodigious waste of eggs of fishes; and adds: "If the eggs of fishes, mainly laid in the open water, all came to maturity, the ocean would be a solid mass in a few years. In a single herring 47,000 eggs were counted, in a cod 6,000,000 in a turbot 9,000,000, in a ling 28,000,000."

After the Ouzels' arrival in September this season, the birds might have been seen every day, and usually repeatedly, if the observer was in near proximity to the streams, a fact that our ranch owner declared unparalleled both in length of stay and frequency of song. The birds sang more or less all through October and November and increasingly as the season advanced.

During the season of 1924-5, I made many and very copious notes, but it seems wise at this time to give only my most significant ones, and I will begin with December 3, 1924.

On this date I had a fine sight of the Ouzel and observed him running up the steep bank for some six or more feet and disappearing under a mass of over-hanging sod and roots remaining for perhaps three or more minutes, when he would reappear and descend to the water's edge, only to repeat the manœuvre.

December 7: Saw two Ouzels together for the first time, observed them repeatedly. Heard several beautiful "whisper songs."

December 9: Again saw two Ouzels together and listened once more to a very sweet subdued song.

December 11: The pair of Ouzels were again together and one was distinctly heard singing near Mr. Paschall's house, while we were at the top of Flett trail—a distance of more than 150 yards.

December 16: Had a fine view of an Ouzel standing breast-deep in the icy water and singing for some time.

December 20: Two Ouzels were seen at the confluence of the two creeks, one, standing on the frosty shore, sang for a prolonged period without cessation. The temperature at this time was 18 degrees.

December 25: On Christmas day the Ouzel was singing with what seemed unusual energy, and with a sweetness quite in harmony with the day.

December 29: The Ouzel was heard singing in Wildcat Creek while I was standing on our front porch quite 200 yards distant.

January 3, 1925: The Ouzel was singing on a log overhanging the water, back of the Nicholas cabin, a fine example of a typical Ouzel song, little or no bobbing while he sang. When he preened his feathers and spread his tail I noted the white under feathers.

At this time I saw a movement which had been noted before but never so conspicuously as then observed: One of the birds spread both wings to their full extent and stood for some time in this position. My associate, Mr. Paschall, counted slowly, one hundred while it maintained this attitude before the wings were lowered. Being at very close range noted particularly the winking of the white-edged eyelids and the flash of the third lid or nictitating membrane. When the bird was facing me the winking seemed simultaneous with both eyes; when but one eye was turned toward me the nictitating membrane *seemed* to flash out from different portions of the eye and at times as though it came from the outer canthus.

January 4: This morning for the first time I saw three Water Ouzels together. They were rather close to each other, some 20 or 25 feet distant, and I examined them leisurely, both with and without a field glass. One of them began to sing while I was

observing them, and continued in somewhat subdued tones for perhaps three minutes while the other two were feeding quietly in the shallow water. The flashing of the white eyelids and the nictitating membranes appeared almost uncanny, and at times followed each other with great rapidity.

January 5: Today I saw the Ouzels repeatedly. Several times I observed large salmon swimming in rather shallow water in close proximity to the birds without their paying the slightest attention to them, though they were showered with water thrown by the fish in their frantic efforts to surmount the strong rapids and jutting rocks. Watched the birds eating salmon eggs for several minutes.

January 6: For the second time saw three Ouzels together, one was singing a superb "whisper song," and once more saw the Ouzels devouring salmon eggs. The large size of these eggs made them easily seen when standing as close as I was this morning.

January 6, P. M. In listening to the Ouzel this afternoon as he sang from his favorite perch, back of the Nicholas cabin, I observed what I had previously noted, a peculiar snapping or cracking note—like a bill snapping—interspersed with his other notes. It did not appear to mar the song in the least, but it was still quite noticeable.

January 7: Today again saw what had been noted before, that the Ouzels take an elaborate bath, fluttering their wings most vigorously and showering water all over themselves, occasionally preening and adjusting their wing feathers. Have twice observed two birds doing this simultaneously, their whole attention being given to this matter for some time. Why a bird that lives most of its day in or under the water should find need for taking an elaborate bath seems a little strange, unless perchance the seeming bath should be but *oiling* the feathers rather than cleansing them.

January 8: In the afternoon two Ouzels were seen below Mr. Paschall's house, one of them sang a most bewitching song. Was impressed with its resemblance to the nightingale as given on one of the Victor records. There was, however, a marked difference in the phrasing and the tempo. There were no long pauses between the phrases and the tempo was more rapid, though not in the least hurried.

In the late afternoon again found one of the birds singing at the foot of the steep bank where they had previously been seen to disappear under the shelving sod and roots. The query now arose: "Is this also the *nightly* roosting place?" A little careful investigation confirmed this fact as two of the birds at dusk, retired under the cover and did not reappear.

January 12: This morning could hear the Ouzel singing from our front porch. From the direction of the sound the bird was again singing in Wildcat Creek. Later found him at his favorite singing spot delivering himself with unwonted fervor, as though the bright sunshine gave him an added stimulus. The song was rendered while standing breast deep in the stream. The notes were interrupted at times to plunge his head under the water for food, but the song was quickly resumed without shaking the water from his head.

January 14: An Ouzel was found singing from his favorite log. On returning to the spot shortly afterward he was still singing, but with greater volume and richer tones, than had been heard heretofore. As I entered the woods-path after leaving the spot, I was startled to hear several clear whistled notes which caused me to pause and turn my head to see if someone was not whistling for me, but discovered that I was hearing only some of the clearer whistled notes of the Ouzel's song.

Later in the day heard once more some of the clucking and snapping notes, also detected some burred notes something of the character of the Pine Siskin's. There was much in the song of the Ouzel which reminded me of the Mockingbird, though none of the sudden changes of pitch of that bird of the south, nor was it as powerful as the Mocker's song.

One thing that characterizes the Ouzel's song is its perfectly fluent character.

January 16: While watching the Ouzel I was suddenly made aware of sharp "Jigic, jigic" alarm notes, and on turning found there was a second bird some sixty feet up the stream. One of the birds almost immediately began to sing very sweetly and continued for several minutes, then suddenly a second song was uttered and I realized that I was hearing my first Ouzel duet. This did not cease for several minutes, neither bird making the

slightest break. Then one ceased, but only for a short time when the duet was resumed. Both birds continued to sing as I slowly walked away. In crossing the bridge over Wildcat Creek, I could still hear both singing, and saw that a third bird was near the bridge in the creek.

January 20: Found two Ouzels below the log—which has now become to us the “singing log,” since it was so frequently resorted to as the “singing site.” The birds were close together, and as the song ceased, each began “jigic”-ing which only ceased when they began devouring salmon eggs and caddis worms. Watched them for some time feeding, resting, or just curtsying and blinking at each other. At times they would pursue each other up and down the stream for short distances but always returning to the spot where I first found them. Finally they flew down the stream to a stretch of swift rapids where they settled in the water and allowed themselves to be swept along with the current for a time, but often facing about with a swift movement and disappearing beneath the water for a few seconds, to reappear with food in their bills. Then one of them stepped to the water’s edge not twenty feet from where I was standing and began singing. Was impressed—as I had been many times before—with their indifference to the presence of human beings in close proximity.

January 21: Saw two Ouzels at different points in Chico Creek. One was in the swift current at the curve below Mr. Paschall’s house where the water was most turbulent,—owing to the very high stage following the heavy rains of the past few days. As this was close to the supposed roosting place and it was nearing dusk I tarried for almost half an hour to see if the bird retired there for the night. Witnessed a superb exhibition of skillful manœuvering in rough and swiftly-moving water. I was tempted to applaud some of their specially dextrous displays, but found this difficult while holding an umbrella to shield myself from the heavy rain that was falling.

January 23: Found an Ouzel on my first trip of the day down the valley. He was sitting on the end of a stick which was anchored in the middle of the stream. I awaited to hear if he might favor me with a song, when I detected a song coming from further down the stream. As I was not able to locate an Ouzel with my

glass, made up my mind the singer was down at the bend of the stream possibly at the foot of the roosting place. I hastened to the bridge and as I walked cautiously up the incline covered with a heavy frost, I could hear that the song came from the site of the roosting place, but suddenly it ceased and I beheld two Ouzels struggling in the water as they were carried rapidly down the stream by the swift current. They were engaged in a fierce combat. They were carried down some fifty feet when they became disengaged and flew swiftly down the stream, one in close pursuit of the other. In a few moments they came up in rapid flight, one close to the other and one singing at the top of his voice. They had scarcely passed out of sight when one returned, flying close to the water, and passed under the bridge upon which I stood. My attention was directed upstream by hearing a series of the characteristic "Jigic! jigic"! from the Ouzel and saw two of the birds coming down the stream, flying close together both uttering their call notes. Just before reaching the bridge one dropped into the water, the other alighting immediately below the bridge. The bird above the bridge very soon flew down to the other and began a series of movements which seemed to me to represent mating antics, which were continued as they went gradually farther down, part of the time walking in the shallow water close to the shore. At times they would take short flights but always kept close together.

Unless close to the birds, I have always found difficulty in determining the sex by their size and plumage. Naturally we presumed the bird which sang was the male. Having heard two of them singing, the inference was that they were two males. What more natural, under the circumstances, than to conclude we had seen the two males scrapping for the favor of the lady Ouzel. Just one lurking suspicion remained, which though possible is not probable. Might the *female Ouzel* sing occasionally? I have several times in my life been surprised to find a female of a species singing which I had never suspected of doing such a thing, and so far as my knowledge extended the books did not credit them with having the power of song. For example, the female Warbling Vireo and the Blue-headed Vireo sing as does the female Cardinal occasionally. I am not contending on such evidence, that the female Ouzel sings, but merely speculating as to the possibility.

Suffice it to say that these and similar antics repeated at different times, gave rise to the belief that this must undoubtedly be the beginning of the reproductive cycle.

A typical incident of the kind was noted on February 6. A smaller and lighter colored bird—which I believe to have been a female—was observed spreading and fluttering her wings and closely following the bird which was singing. At times she would run rapidly toward him, with head lowered, wings extended and in rapid motion. These charging motions were repeated again and again, the male however, apparently giving but scant heed. It seemed quite obvious that the advances—at the time—were mainly made by the female, although the male gave vent to ardent bursts of song when the female flew to or past him. It seemed as though the little lady gave expression to her feelings chiefly by means of muscular movements and attitudes while her admirer expressed his passions by means of sweet melodies.

Later in February, I repeatedly saw the two Ouzels retire to the roosting place in the steep bank, the male usually singing a few vesper strains before and after the female had retired.

February 12: At 5 P.M. saw one of the Ouzels at the fork of the streams in the rapids. This presented an unusual opportunity of observing the crystal combing of the water over his head and back as he reached under the surface for food morsels. This phenomenon is so inseparably associated with the Dipper that one can hardly think of him without recalling it. From very necessity he usually faces up-stream and the cowling of a graceful, transparent film of water results, the more noticeable because it is so frequently repeated, and often retained for some moments. On two occasions at least, a pair of birds was observed in the morning *coming from their roosting site.*

Joseph Grinnell has most fittingly characterized this bird in the following short sentence: "This one-time land bird, relative of the Wrens and Thrushes, has taken to living *about* and *in* and *under* the water."

How a bird with scarcely any structural marks of an aquatic, can have acquired such a mastery of a medium to which it would appear to be so ill adapted, is one of the wonders of bird life. Lacking the foot of a swimming bird yet progressing skillfully

in and under the water; minus the bill of the typical water-feeder, nevertheless capturing its food in and under the water with an ease which seems little short of miraculous.—This is indeed almost incredible! With the wing of a land bird, yet always showing the greatest reluctance even temporarily to abandon the water, building a nest unlike most water birds, in a situation unusual for either land or water birds and finally possessing a song of the highest type known.—What a bundle of contradictions!

John Muir says of the Ouzel's song: "What may be regarded as the separate songs of the Ouzel are exceedingly difficult of description because they are so variable and at the same time so confluent. Though I have been acquainted with my favorite ten years, and through most of this time have heard him sing nearly every day, I still detect notes and strains that seem new to me. Nearly all of his music is sweet and tender, lapsing from his round breast like water over the smooth lip of a pool, then breaking farther on into a sparkling foam of melodious notes, which glow with subdued enthusiasm, yet without expressing much of the strong gushing ecstasy of the bobolink or skylark.

"The more striking strains are perfect arabesques of melody, composed of a few full, round, mellow notes, embroidered with delicate trills which fade and melt in long slender cadences. In a general way his music is that of the streams refined and spiritualized. The deep booming notes of the falls are in it, the trills of the rapids, the gurgling of margin eddies the low whispering of level reaches, and the sweet tinkle of separate drops oozing from the ends of mosses and falling into tranquil pools.

"The Ouzel never sings in chorus with other birds nor with his kind but only with the streams. And like flowers that bloom beneath the surface of the ground, some of our favorites' best song-blossoms never rise above the surface of the heavier music of the water. I have often observed him singing in the midst of beaten spray, his music completely buried beneath the water's roar yet I knew he was surely singing by his gestures and the movements of his bill."

This singing of the Ouzel amid the deafening sounds of rushing waters was observed in our various mountaineer outings, and never more markedly than at the Olympia Hot Springs of Washing-

ton State, where Boulder Creek poured its turbulent waters through the gorges and thus silenced the songs of the Ouzels.

It was at this point that our first Ouzel's nest was discovered and here we saw both Ouzel parents feeding their young in the nest which was located under the flume that supplied power to a saw mill.

Bradford Torrey in his 'Field-Days in California,' says: "There is no California bird, not even the big Vulture (Condor), that I have been more insistant upon seeing than the Water-Ouzel. There is none to which so romantic an interest attaches. And it may be added there is none which has cost me so many steps.

"It is a bird of mountain cañons not of their precipitous rocky sides, like the Cañon Wren, but of their hurrying brooks and especially of their water falls. Technically as men take account of such things, it is a "land-bird" as under the *same* ruling the Snipe and the Wood-cock are *water birds*. But the bird does not know it. Where there is no water look for no Ouzel. As well seek the Kingfisher, another "land-bird" in the desert, or the Humming bird where there are no blossoms." x x x Torrey found much difficulty in getting his first sight of the Ouzel, and when he finally accomplished this, he quaintly remarks: "There they stood, each on a boulder, gesticulating and scolding, and to my delight one of them presently dropped into the pool and swam across it. And now my attention was caught by the fact that every time either of them bobbed up and down they winked! For an instant his dark eye flashed white! The effect was weird, I may say comical. A most extraordinary trick it surely seemed, the reason or motive of which I must leave for others to conjecture. For myself, I do not wonder that John Muir, in his prose poem upon the Water Ouzel,—one of the most supremely beautiful chapters ever written about any bird,—makes no allusion to this habit. It would have been a jarring note. I looked—laughed, till at length the birds flew to the cascade wall, stood there for a minute or two, side by side, still bobbing and winking, and then vanished up stream."

For a beautiful apotheosis of this weird yet charming bird I cannot refrain from calling attention to the following by Stanton Davis Kirkham, from his work 'In the Open':—"Who can hear the

wild song of the Ouzel and not feel an answering thrill? Perched upon a rock in the midst of the rapids he is the incarnation of all that is untamed, a wild spirit of the mountain-stream, as free as a rain-drop or a sunbeam. . . . This bird, more than all others, embodies the wild. In him the spirit of the mountain finds a voice." . . . And from his 'East and West': "To me, the most truly sylvan voice is that of the Ruby-crowned Kinglet, while the wildest note that Nature utters through the throat of a bird is the song of the Water Ouzel."

My friend of Hidden Ranch, Washington, a birthright Quaker, has most beautifully put on record through a letter written to his sister living in the East,—the wonderful influence a bird such as the Ouzel may have on one's life. The following extract from this letter reads thus: "Does thee ever grow weary and (for a moment) despondent? Does the sky ever seem (for a moment) hopelessly overcast? Do people ever (for a moment) seem cold or selfish? Does life ever seem troubled? If so thee needs the Water Ouzel. Recently it rained and was dark. (Except for having lost step I would not have known of either rain or darkness.) Then the Ouzel sang and in an instant all was changed. There stood the bird in mid-stream; stood on a submerged rock or pebble, rushing water on all sides; rain falling, and all that. Out of the small throat came contentment, and cheer, and an overflow of spirits; every note (as John Muir truly says) born of running water; high (but soft) sounds; the sparkling of rapids and the contact of pebbles with each other; the melody of Canary and Thrush and Sparrow blended."

Keokuk, Iowa.

THE SEX OF THE INCUBATING KILLDEER.

BY GAYLE PICKWELL.

Plates XXIII-XXIV.

It became necessary, as a part of some experimental work the writer is doing with nest-protective and young-protective reactions of the Killdeer, to collect birds, the more accurately to assign to the proper sex the various reactions. To this end a beginning was made the summer of 1929 and two incubating Killdeers were collected. Both of these proved to be males.

One of these was taken from a nest in the vicinity of a peculiar sink hole, which still contained some water, on a lava-boulder strewn plain some thirty miles west of Mt. Lassen and fourteen miles east of Red Bluff, California. The other was taken from a nest on a slight elevation above the general heavily grass-covered and marshy land some two or three miles west of Ft. Klamath, Oregon. The former was taken on June 21, and the latter on June 27, 1929.

It is significant, in this connection, to go into some detail with regard to the conditions under which the birds were taken and their reactions prior to collection. The first bird was one of scores of Killdeers that had been attracted to the isolated pond in that otherwise very dry and inhospitable country. Water is at a premium here and this particular body seemed to be the result of drainage of winter rains from the hundreds of acres of barren lava fields that slope gently into it from nearly all sides. Since the water, now only a few acres in extent, was so shallow, even this drainage seemed scarcely sufficient to account for its continued existence into June after weeks of the blistering hot weather that is a feature of the upper Sacramento Valley region. Perhaps a spring from beneath, contributed by the snows of the nearby Lassen and Sierra mountains, may have accounted for its persistence. In any case it had no outlet that was visible and its evaporating water had left white alkaline rings for hundreds of yards out from its present level. The boulders that covered the plains as

thickly as sheep on all sides encroached also up to and into the water.

We had gone into the region to make observations of the Ruddy Horned Larks which inhabit these peculiarly uninviting lava fields by the hundreds. The Killdeers attracted our attention only incidentally at this time. But, it should be noted, though there was an amazingly large number of species and individuals of other birds in the trees that bordered the stream beds of the region, on this torrid plain there were Larks and Killdeers only. Dr. Jean Linsdale tells me that men from the Museum of Vertebrate Zoölogy of the University of California have found as many as five nests of Killdeers here in one day but at the time of our visit, though Killdeers were numerous and solicitous, probably only a few were incubating.

The reactions, of the bird here collected, were in most respects typical of the incubating Killdeer (quite radically different it is to be noted from those of the parent with young). The first indications of a nest were noted the day prior to its discovery. These were faint "dee" calls heard from the same locality (some two or three hundred yards from the pond), two or three successive times. This is always indicative of a Killdeer nest: repeated presence of a bird in the same locality and a solicitude milder than that when there are young. On June 21, when passing by this locality, we located the calling bird with our glasses and seated ourselves some fifty yards distant. The Killdeer shortly ran up to a certain spot and stood there bobbing. Here was a nest, rather elaborately made for a Killdeer, in a considerable depression formed by a collection of lava gravel and wooly heads of a small composite that dominated the region.

The bird seemed much more concerned with shading the eggs than with incubating them for, throughout the entire period that we observed, not once were the eggs settled upon. The temperature that day reached 110 degrees Fahrenheit at Red Bluff and in the exposed glare where the Killdeer nest was located certainly the temperature was well above this. Embryos, in eggs exposed to this sun, could not have withstood its heat for more than a few minutes certainly. The rocks became so hot that they were burning to the touch and even those children of the shimmering heated places,



UPPER: HABITAT OF KILLDEER'S NEST, FORT KLAMATH, OREGON.

LOWER: MALE KILLDEER SHIELDING EGGS FROM THE SUN, MT. LASSEN, CALIF. IN THE DISTANCE.

the Ruddy Horned Larks, would not alight on them but rather spent the middle portions of the day in their shade, panting. One located nest of the Ruddy Horned Lark had been built well under the shade of the north side of a boulder. But the Killdeer nest had no protection whatsoever from the sun and the parent bird suffered intensely, with all feathers relaxed and ruffled up and with constant vigorous panting, while he protected the eggs with the shadow of his body.

The Killdeer had left the nest this day and the previous with the typical furtive abandonment that the bird always uses to conceal a nest on first or widely spaced visits of an intruder. The call, as noted, was given after the bird had reached a position thirty yards from the nest. After returning to the nest and while we were in the vicinity the bird continued to call from the nest and at no interval of less than fifteen minutes did we get any other reaction. In this case, then, an interval longer than fifteen minutes would have been necessary for a repetition of concealment by furtive abandonment. We walked up to the bird repeatedly from various distances. The bird cried from over the nest as we approached, left it only after we had come within thirty or forty feet and ran only a few yards. The bird was back over the eggs in less than a minute each time as we retreated to a position some seventy-five feet distant.

The writer has had too much experience with the automatic responses of birds to attribute to them any pronounced facultative intelligence or even prescience but there may have been some relationship between the danger of the intense heat of the sun and the solicitude of the Killdeer in shading these eggs.

This remarkably solicitous bird was finally (and reluctantly on our part), collected on the nest. Dissection proved it to be a male. Equally important, in this case, is the fact that no other Killdeer was ever noted nearer than the margins of the pond (two-hundred plus yards away) and, of course, no other expressing solicitude in the vicinity.

The situation at Fort Klamath was radically different but of great interest, nevertheless. It should be noted that this is the location of many of the important and interesting observations of Dr. J. C. Merrill of more than forty years ago during the days of

the old army post here. Now the fort is gone and but a lonely store or two still clings to the old encampment. Likewise Dr. Merrill's marshes, that extended for so many miles up from the head of Upper Klamath to the south, have been converted largely into pasture lands and his birds have gone with them.

But the pastures are luxuriant and wet. Roads dissect the lowlands here and there and their side ditches fill with water. Water-filled canals run this way and that across the pasture lands. As one would expect this condition exerts a powerful appeal to the Killdeers. But since they must have bare ground to run upon and to nest upon they are restricted largely to the roadsides and the occasional dryer hummock.

While driving over these roads Killdeers would start up every few hundred yards and one group of three downy young was noted. *Two* adults were with them expressing solicitude but one only gave the typical distress simulation.

We stopped at another point where several (at least three), Killdeers were in evidence along the roadside and from this point we noted a Killdeer go on to a nest about thirty feet from the road and about fifty feet from our car. This return was within five minutes of our arrival but since we remained partially concealed in the car this may have accounted for the rapid return after the initial furtive abandonment. To a companion, Mr. Alton Alderman, goes the credit for locating this nest. It was in a small depression surrounded by fine pebbles and on a little area about thirty by fifty feet that stood a few inches higher than the surrounding very flat region. As a consequence of its slight elevation its grasses were shorter and sparser than the others of the vicinity but were still somewhat heavier than the conditions ordinarily selected by the Killdeer.

The bird returned within five minutes of its second flushing and an attempt was made to collect it on the nest but the charge missed. In spite of the alarm this must have caused the bird it was shortly back, returning with its typical run and pause method. Mr. Alderman stepped up to it and, as it left the eggs in abandonment concealment (without calling), it was collected about six feet from the nest. This bird, a male, had the breast feathers well worn and the brood spot very large. This was also the case with the Red Bluff bird.

Though other Killdeers were in the vicinity expressing solicitude there was none which could with certainty be ascribed as the mate of this collected Fort Klamath bird. We returned to the eggs after an absence of more than an hour but no incubating bird was over them and they were very hot from the sun indicating that none had been. A Killdeer in the vicinity called.

Two incubating males do not in themselves make a full case for reversal of parental instincts but, in connection with many other observations, they point forcibly in that direction. Thus, though I have spent many hours in close observation at many nests,¹ I have never seen exchange of incubating birds. Likewise, while performing many experiments with the young, though there have been two adult birds in the vicinity, one always expressed much more solicitude. I am constrained to believe that this incubating and more solicitous bird is the male. The female of course must lay the eggs. Does the male, however, make the nest as do male Phalaropes? What are his reactions during egg laying? Since the young hatch almost simultaneously he does not incubate until the set is complete; but does the female initiate incubation? These and several other questions are as yet unanswered.

Since we are, with regard to shore birds where sex markings do not exist, in a state of transition from that period where the more solicitous bird has always been assumed unquestioningly to be the female, to a state where the reverse position may someday be assumed for many, it may be well to summarize our present knowledge of the situation. In looking over the literature it is very hard to sort away the statements where the knowledge regarding the sex of shore birds is only inferred from that where definite knowledge is present due to collecting and sexing. One is especially impressed with this fact in seeking for precise information on the subject in the many sources which Bent² has used in compiling his "Life Histories of North American Shore Birds." However, using these two bulletins as a basis, and concerning ourselves only with the incubating sex, the following categories can be made provisionally:

¹ Pickwell, Gayle, "Nesting of the Killdeer," Auk, Vol. XVII, 1925, pp. 485-496.

² Bent, A. C., "Life Histories of North American Shore Birds," Bulletins 142 and 146, 1927 and 1929, U. S. Nat. Mus.

1. Species where female alone incubates; European Woodcock; Pectoral Sandpiper.

2. Species where the male alone incubates: Red, Northern and Wilson Phalaropes; Killdeer (probably);¹ Surf Bird (probably); Spoon-bill Sandpiper (probably).

3. Species where both male and female incubate: Black-necked Stilt; American Woodcock; Wilson Snipe (probably male chiefly); Long-billed Dowitcher (male chiefly); American Knot; Purple Sandpiper; Pribilof Sandpiper; Aleutian Sandpiper (male chiefly); Least Sandpiper (male chiefly, probably entirely); Dunlin; Red-backed Sandpiper; Curlew Sandpiper; Semipalmated Sandpiper; Western Sandpiper; Pacific Godwit; Black-tailed Godwit; Green-shank; Eastern Willet; Upland Plover; Spotted Sandpiper (male chiefly); Long-billed Plover; European Golden Plover; Pacific Golden Plover; Black-bellied Plover; Semipalmated Plover (difference of opinion as to most solicitous sex); Ringed Plover; Turnstone; Black Turnstone; European Oyster Catcher.

4. Questionable, insufficient or no data as to sex incubating: American Avocet; Snipe (European); Great Snipe; Jack Snipe; Sharp-tailed Sandpiper; White-rumped Sandpiper; Long-toed Stint; Marbled Godwit; Sanderling; Rufous-necked Sandpiper; Redshank; Greater Yellowlegs; Solitary Sandpiper; Western Willet; Wandering Tattler; Buff-breasted Sandpiper; Hudsonian Curlew (male most demonstrative); Eskimo Curlew; Dotterel; American Golden Plover; Little Ringed Plover; Piping Plover; Snowy Plover; Wilson Plover; Mountain Plover (an incubating male has been taken); American Oyster Catcher; Mexican Jacana.

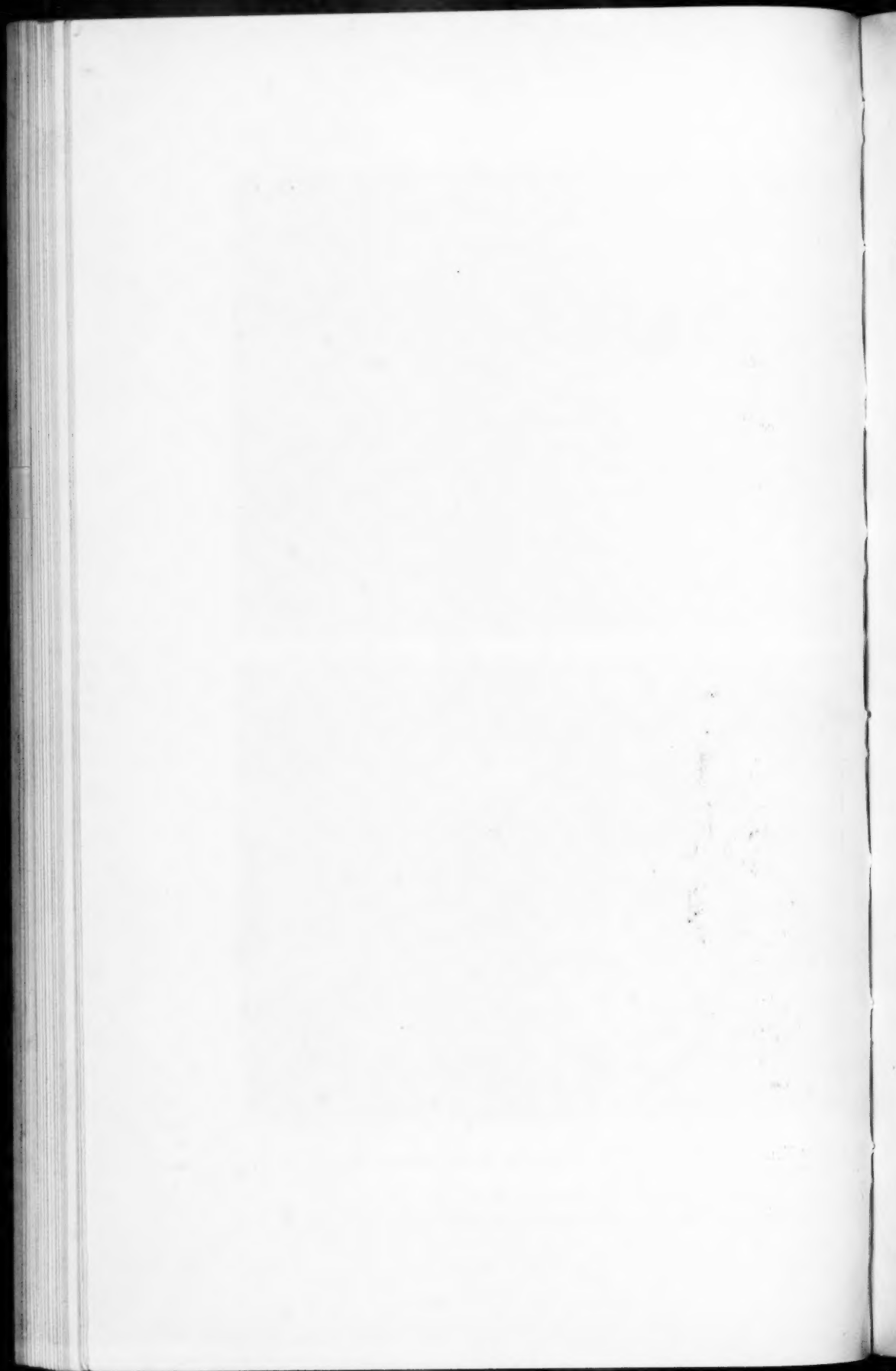
Many of the species in the first three categories require more careful collecting before they can be definitely assigned. And the number in the fourth category is quite astonishingly large. Especially in this true of the Plovers and this is the more interesting

¹ Bent (*loc. cit.*, Bull. 146, p. 207), states that both sexes of the Killdeer incubate. He gives, as the authority for this statement, F. L. Burns ("Comparative Periods in Deposition and Incubation of Some North American Birds," *Wilson Bulletin*, Vol. 27, pp. 275-286). Reference to this article discloses that Burns, collecting a mass of material from manuscript notes of various individuals and "statements of authors," writes that, "according to present information both sexes take regular turns at incubation" (p. 277), and includes the Killdeer in a long list of others. Since he gives no specific evidence his record is open to question with regard to this species.



UPPER: KILLDEER'S NEST ON A LAVA-BOULDER PLAIN BETWEEN RED BLUFF AND MT. LASSEN, CALIF.

LOWER: KILLDEER'S NEST, FORT KLAMATH, OREGON.
INCUBATING MALE BIRDS WERE COLLECTED FROM BOTH NESTS.



since many of them nest within the boundaries of the United States (excepting of course the casual visitants which Bent includes), and not far to the north as is the case with the majority of the Sandpipers.

One or two recent writers have contributed information to this question of considerable interest and, though their records have been reviewed by Bent and so included in the above summary, a word or two should be said about them in addition. Thus Van Rossem,¹ with assistance from the notes of Dr. Loye Miller and Alden Miller, first disclosed the family scandal of that well-known bird the Spotted Sandpiper. He shows that the courting bird, in one instance at least, was the female; in two cases the only parent with the young was the male; and in a fourth case the incubating bird was a male. But the same article quotes Dr. Joseph Grinnell as reporting three specific instances where the female was with eggs or young.

Dixon has done more than most ornithologists to uncover this interesting problem and his reports of Baird's, Spoon-bill and other Sandpipers are included in the preceding summary taken from Bent. In his magnificent report² of the discovery of the Surf Bird at home he writes that an incubating bird collected was a male and that of eight birds taken five were males with bare incubation patches or egg pockets on their lower breasts whereas none of the females (two specimens), had these.

As may be supposed, wherever the male incubates largely or entirely, he assumes chief care of the young, shows more solicitude in their behalf and is retiring or unaggressive in courtship. In fact he takes over all the usual duties and attitudes of the female except egg laying. This is most pronounced in the Phalaropes but also has been shown for the Spotted Sandpiper. Careful observation may show it for many others.

This problem undoubtedly has some deep-seated physiological and cytological implications but it is interesting too because of its partial or complete reversal of the so-called "maternal" instincts which have always been presumed to dwell exclusively or largely

¹ Van Rossem, A. J., "Observations on the Spotted Sandpiper," *Auk*, Vol. XLII, 1925, pp. 230-232.

² Dixon, Joseph, "The Surf-bird's Secret," *Condor*, Vol. XXIX, 1927, pp. 2-16.

in the female. It requires, properly to comprehend it, thorough study not only of incubation but of courtship, nest building and care of young. The writer plans to carry the matter farther with the Killdeer though, unfortunately, considerable collecting must be done to clarify it.

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THE DESTRUCTION OF BIRDS AT LONG POINT LIGHTHOUSE, ONTARIO, ON FOUR NIGHTS IN 1929.

BY W. E. SAUNDERS.

THIS lighthouse appears to be the only one in Ontario at which birds are killed annually in serious numbers, and when Mr. Harrison Lewis undertook a survey of all the lighthouses there were none that approached the deadly character of that at Long Point. The cause for this may lie partly in the fact that the light is one hundred thousand candle power, which is more powerful than is used at any other lighthouse in Ontario. While this may be the prime reason for the present destruction it is also a fact that I have heard of similar destruction of birds at this lighthouse for very many years.

Previous occurrences of this nature have been noticed in the 'Canadian Field Naturalist' during the past five years.

Mr. Lorne Brown, the keeper of the light, telephoned me from the lighthouse on Sunday morning, September 9, 1929, to say that he had picked up over six hundred birds on the previous day, and would I come down to see them. Promptly I consented, and asked how I could reach the light. The reply was that Mr. Brown would meet the fish boat from Port Rowan about nine the next morning. I telephoned Mr. Munroe Landon at Simcoe and arranged that he should go with me. I then drove to Simcoe and found that the fisherman was not going out on Monday morning. Further phoning revealed another man who would take us out, though the rising wind disinclined the boatmen to go.

Seven o'clock the next morning saw us at the end of Turkey Point, embarking for the lighthouse. Long Point is all that its name implies, reaching out east by south from the mainland for twenty-two miles towards Buffalo. At the lighthouse we were told that we were then eighteen miles from Port Dover, the nearest place on the mainland, twenty-two miles from Port Rowan at the base of the Point, and only twenty-eight miles from Erie, Pennsylvania, which appears to be the destination of the thirst-quenching boats from Ontario. I got no hint as to whether the birds followed

the Point from Port Rowan or whether they flew directly south from Port Dover. It seems probable that both courses are adopted, and we found the Sharp-shinned and other Hawks, flying along towards the east tip of the Point, and there, most if not all, of them turned back. What Swallows we saw were all flying west along the Point, but this was only what might have been predicted as the west wind was pretty strong, and those birds have keen prejudices against flying with the wind.

When we arrived at the lighthouse, we found that there had been another but smaller destruction of birds on the preceding night and we gathered up 171 bodies, most of which were fresh and all of them are taken as belonging to the flight of September 9, though it is probable that some few had been overlooked in Mr. Brown's previous search. We found perhaps twenty birds around the lighthouse, in various stages of damage, after having hit the building. Some of these we killed, and others seemed to have a chance of recovery and were let go, though they were more likely to become the food of the numerous Sharp-shinned Hawks or of the Skunks whose tracks were so abundant on the sand.

Mr. Brown has been at the light for several years and had never seen such a slaughter of birds as this present one, though a few birds are frequently killed. Later in the year there are frequent occurrences of Rails. The total list of casualties follows and includes:

Warblers	583	Flycatchers	16
Vireos	137	Sparrows	9
Thrushes	38	Cuckoo	1
Bobolinks	37	Grebe	1
		Tanager	1

It is interesting to note that, while some of the birds were killed in almost the same percentages of the total on the two nights, yet there are others, the variation in whose numbers hint that their migration was either nearly done or else just beginning. Among those whose numbers remained steady during the two nights are both of the most abundant ones, Maryland Yellowthroat and Red-eyed Vireo, also the Ovenbird, Magnolia, Blackpoll, Chestnut-sided and Mourning Warblers. On the other hand the Black-

burnian Warbler fell off from 87 to 12, the Redstart from 23 to 3, the Water-thrush from 36 to 5, the Cape May Warbler from 14 to 1, the Veery from 6 to 1, and the Bobolink from 32 to 5. These figures would indicate that the migration of the birds named was past its crest, and they were mostly gone.

A few species showed a marked increase on the later date; the Canada Warbler whose figures were 11 and 7, the Bay Breast 7 and 7, Wilson's Warbler 7 and 5, the Black-throated Blue, whose numbers rose from three to four, and the Olive-backed Thrush with 16 on the first night and 10 on the second. The whole Fly-catcher migration appeared to be nearly done, as none of the four species were represented in the account of the second day, while Lincoln's Sparrow, did not appear at all on the first night, two were found on the 9th.

A peculiar feature of this disaster was the fact that three Red Bats were picked up on the 9th, and I am not at all certain that another such occurrence is on record.

In addition to the birds killed and listed above, we saw a very sluggish Baltimore Oriole on the 9th, which was perfectly able to fly, and covered a hundred yards in its flight to the next tree, when flushed, but it was so extraordinarily tame that we got beneath it at a distance of only about six feet, and even then we had to shake it out of the tree before it would leave. We thought it almost certain that it was an injured bird that was remaining in that dangerous locality where the Sharpshins were coursing back and forth all day, until it should have recovered sufficiently to undertake the flight across the lake. And for a partially disabled bird, such a passage must seem a real hazard, for how could our Oriole tell that it was not starting on a 200 mile flight instead of one of only thirty miles? However, the birds have to take such chances, and the punishment of error is, in many instances the death penalty.

On the night of September 25, Mr. Brown telephoned me again from the lighthouse stating that he had picked up 350 birds that day and that at the moment of talking the birds were tremendously abundant around the lighthouse. I asked him to box them up in the morning and ship them by express. They arrived at 9 o'clock on the night of the 27th and with the assistance of the president

and four other members of the McIlwraith Ornithological Club, we had them all classified and listed by 1:30 A.M. Unfortunately it rained on the night of the 25th and as the birds were boxed early in the morning while wet they arrived in rather a bedraggled condition, causing us to lay aside about 200 during the first part of the evening to dry, but by the time we were ready to consider them they were nearly dry and our difficulties vanished.

As before, Warblers were the chief sufferers but Thrushes were a good second and averaged more birds per species than did the Warblers, there being 292 Thrushes of only four species. And there was one feature of the Thrush migration which was quite astounding and not paralleled by any previous experience; that is, the predominance of Gray-cheeked Thrushes, there being 150 of them to 140 Olive-backed. Another shy and retiring bird which occurred in rather large numbers was the Connecticut Warbler, of which there were 30.

At the recent meeting of the McIlwraith Ornithological Club the writer was instructed to take up this matter with the Canadian authorities with a view to having some sort of protection for the birds at the Long Point light; either in the form of perches, outside lights illuminating the tower or in some other way.

A complete list of birds killed on the flights above described, follows:

BIRDS KILLED AT LONG POINT LIGHTHOUSE, ONTARIO, 1929.

	Sept. 7	Sept. 9	Sept. 24-29
Pied-billed Grebe.....	1	—	1
Yellow-bellied Sapsucker.....	—	—	2
Black-billed Cuckoo.....	1	—	1
Sora.....	—	—	1
Semipalmated Sandpiper.....	—	—	1
Wood Pewee.....	4	2	4
Alder Flycatcher.....	3	—	1
Yellow-bellied Flycatcher.....	—	—	1
Kingbird.....	2	—	—
Phoebe.....	1	—	—
Least Flycatcher.....	4	—	—
Bobolink.....	32	5	1
Rusty Blackbird.....	—	—	1
Savannah Sparrow.....	5	2	83
Grasshopper Sparrow.....	—	—	1

	Sept. 7	Sept. 9	Sept. 24-29
Lincoln's Sparrow	—	2	10
Swamp Sparrow	—	—	3
White-throated Sparrow	—	—	16
White-crowned Sparrow	—	—	17
Rose-breasted Grosbeak	—	—	4
Indigo Bunting	—	—	5
Scarlet Tanager	1	—	14
Yellow-throated Vireo	—	—	1
Blue-headed Vireo	—	—	1
Red-eyed Vireo	109	26	41
Philadelphia Vireo	1	1	5
Cedar Waxwing	—	—	2
Black and White Warbler	5	2	2
Parula Warbler	—	—	8
Nashville Warbler	1	—	9
Tennessee Warbler	13	3	22
Golden-winged Warbler	1	—	—
Yellow Warbler	7	2	—
Cape May Warbler	14	1	14
Black-throated Blue Warbler	3	4	35
Black-throated Green Warbler	1	—	17
Magnolia Warbler	32	6	36
Chestnut-sided Warbler	22	6	9
Bay-breasted Warbler	7	7	31
Black-poll Warbler	31	6	199
Blackburnian Warbler	87	12	4
Palm Warbler	—	—	24
Maryland Yellow-throat	111	29	114
Connecticut Warbler	8	6	35
Mourning Warbler	20	5	12
Northern Water-Thrush	36	5	5
Ovenbird	30	9	107
Wilson's Warbler	2	5	1
Canada Warbler	11	7	3
Redstart	23	3	40
Wood Thrush	—	—	1
Veery	6	1	—
Hermit Thrush	—	—	1
Olive-backed Thrush	18	10	140
Gray-cheeked Thrush	1	2	150
	654	169	1237

London, Ontario.

TEXAN BIRD HABITATS II.

BY C. W. G. EIFRIG.

SOME time ago ('Auk,' Vol. XLVI, No. I, Jan. 1929) the writer related his impressions and experiences with birds during a visit to Texas in the summer of 1925. What he then saw determined him to return and delve a little more deeply into the wonderful avifauna of this great state. Accordingly, early in June 1926, he again set out for Texas, reaching Houston on the eighth of the month. As it turned out, the visit of 1925, interesting though it had been, was like the preface of a book compared to its content, compared to what was seen and observed on this second visit. For one thing, the year 1925 had been an exceptionally dry one, even for Texas, it not having rained for months, while 1926 was an exceptionally wet one. The differences produced by the changed weather conditions in certain bird habitats were altogether startling, well nigh unbelievable from a northern point of view, and such as would be quite impossible in the latitude of, let us say, Chicago.

Houston was made our first base of activity. From here trips were made in several directions, occasionally camping out overnight, with the sky as our blanket. To the north of Houston are found large stretches of original prairie, beginning right at the edge of the city, as yet unspoiled by the upheavals of "realtors" and "subdividers," so often seen on the outskirts of cities in the North. These prairies are crossed from east to west by bands of woodland, consisting mostly of loblolly pine. Our first trip was into this region, to Spring Creek, twenty miles north of Houston. Here Carolinian even Transition species preponderate, as witness this list: Red-eyed Vireo, Kingbird, Blue-gray Gnatcatcher, Yellow-billed Cuckoo, Tufted Titmouse, Cardinal, Purple Martin, Orchard Oriole, Cedar Waxwing, Crested Flycatcher, Dickcissel, Belted Kingfisher, Turkey Vulture, Bittern, Least Bittern, King Rail, and Killdeer. Also three Chimney Swifts were seen, as well as numerous Bronzed Grackles, Red-bellied Woodpeckers, and Summer Tanagers. There were the southern forms of the Downy and Hairy Woodpeckers, and Parula Warbler, as well as

the Texas variety of the Nighthawk, Bewick's Wren, (called Texas Wren), Bobwhite, Meadowlark, and the Texas Woodpecker (*Dryobates scalaris bairdi*), also the Rio Grande Redwing, Mourning Dove, and Mockingbird. The last-named, together with the Cardinal and Crested Flycatcher, are most characteristic and nearly ubiquitous species. On wires along the roads could always be seen the Kingbird and the Meadowlark. In the bottomland timber the Yellow-billed Cuckoo, Crested Flycatcher, Blue Jay, Summer Tanager, and Red-bellied Woodpecker were extremely numerous. One of the last was seen with a luna moth in its bill. There had been a great emergence of these apparitions from fairyland the night before in this wood.

A species new to me was found in nearly every bottom-land woods, the Small White-eyed Vireo (*Vireo griseus micrus*). This is a clear extension of range eastward to that given in the checklist, where its range is given as Rio Grande valley to Tamaulipas etc., Mexico. It is a small edition of the northern White-eyed Vireo, and its song here seems to vary from place to place, and almost from individual to individual. One would sing *wee dee diddle dee*, another, *wheata wheata réary*, still others had the more characteristic form *ti ti ti tee teédio*. The last was the most musical form of their songs. A troupe of rollicking Chickadees proved to be the Plumbeous one. Cowbirds were present but Bluebirds were rare.

One day we drove twenty miles west, where there are even more extensive prairies, given over to grazing on a large scale. We walked over this prairie for hours, searching for Attwater's Prairie Chicken. Birds of this species had been seen daily by the owner of the ranch, but we saw none. Just as we were getting into our "flivver" to depart, we heard several cackle nearby but another intensive search failed to reveal them. From its ability to keep out of sight the future of this bird ought to be secure for years to come in these endless prairies, although foxes, coyotes, and wolves, which are common here, must be a heavy handicap to their existence. Every pool here harbored young and old King Rails, Bitterns, Redwings, Grackles, and Dickcissels.

Among the unforgettable experiences I had was a trip to Sand Point and Velasco, southwest of Houston. We drove to Sand Point in a sizzling hot sun, but these discomforts were, momentarily

at least, forgotten when one would see a snow-white Egret standing in every wayside pool. At Sand Point is a pond set in a frame of large live-oaks from which hang festoons of Spanish moss. In the center of the pond are many large bushes. These were covered with Little Blue Herons, the majority in the white plumage, Egrets and Snowy Egrets, Louisiana and Little Green Herons, while several Anhingas were preening their feathers. Altogether it was a scene of tropical or subtropical loveliness. Following up a loud call, it was found to proceed from a Pileated Woodpecker, this, of course being the southern form *P. pileatus pileatus*.

From Sand Point we went to Velasco, a matter of about fifty miles farther. It is famous in Texas history by reason of the treaty of that name between Mexicans and Texans. Along the way Black Vultures were common. Arriving on the shore of the Gulf, we drove several miles over the smooth, hard sand of the beach. It was now toward evening. Never have I seen a locality where Prairie Horned Larks and Nighthawks are as abundant as here, the Nighthawks were flying everywhere, around and darting toward one. Their eggs and young were easy to find. The Larks were equally abundant but not quite so conspicuous, and one could distinguish them at once as different from the Horned Lark in the North; there is more yellow on the throat and the plumage is browner. We camped on the beach, a few yards from the gently lapping waters of the Gulf, with the starry heavens as our canopy. Venus shone above with unusual brightness, drawing a wide golden band over the glittering waters. Toward morning it became uncomfortably cool. Upon getting up early, we found that we had been in the company of innumerable sand and fiddler crabs, with a rattlesnake or two in the driftwood nearby. And then things began to happen. Companies of Wilson's Plover, Willets, Laughing Gulls, Caspian Terns, and Black Skimmers passed by as if in review. While kneeling down to place a crustacean in a jar, I could distinctly see how one of the Skimmers skimmed along with the lower mandible in the water. I have seen this repeatedly; there is no doubt in my mind that they do this habitually and for the purpose of procuring food.

In a tidal pool, back of our primitive camp, could be seen a company of about 100 to 150 Wood Ibises, interspersed with about ten

White-faced Glossy Ibises, Egrets, Mexican Cormorants, and Ward's Herons while several Mottled Ducks (*Anas fulvigula maculosa*) were flying about. Overhead the shrill cries of the Black-necked Stilt were heard whenever we came near a grassy area fringing the pools. Their young could be seen skulking in the grass. Even here a Mockingbird sang from a pile of driftwood.

One day was spent along the densely wooded San Jacinto River, on which, a little further downstream, Sam Houston defeated Santa Anna, and thus clinched the independence of Texas. This forest cover is wild and extensive enough to harbor deer, wolves, and an odd panther and bear. The Parula Warbler and the Small White-eyed Vireo were easily the outstanding species here and their songs could be heard all the time.

Another memorable experience, still in the Houston region, was a visit to a colony of Yellow-crowned Night Herons. The heronry was located in one of the loblolly pine belts, five or six miles out from the city, with swamps near by. This species evidently nests inland only, as we never encountered it in any of the coastal marshes. This one numbered about twenty-five nests. At this time, June 13, most of the young had left the nest, but I counted about twenty still in the nests or on the ground below them. They are much like those of the Black-crowned Night Heron. The nests were built twenty-five to forty feet up in the pines, most of them in the long, dense bundles of leaves or needles at the end of the branches. There was no sound heard from the Herons, young and old were silent.

From Houston I transferred my activities to Bishop, near Kingsville. The farm or ranch where I made my headquarters adjoins the famous and enormous King's ranch, said to comprise a million acres. Here is where I received my greatest surprise. Near my quarters is a piece of original prairie, dotted with copses of mesquite, huisache, retama, and similar trees and bushes of the legume family. The trees are mostly eight to twelve feet high. When I was here the previous year this place had been absolutely dry, as it had not rained for months. There were then only a few pairs of Mourning Doves, Scissor-tailed Flycatchers, and Western Lark Sparrows here. The cow-paths between the trees were dusty, and the sparse grass none too green. When I approached

the same place this year, I heard from afar a bedlam of bird voices. Coming closer, I saw water standing as far as the eye could see. The water proved to be about three feet deep. Floating on it were thousands of beautiful blue, white, and yellow water lilies. Over all was a wealth of bird life, absolutely bewildering in its abundance. A flock of about 25 White-faced Glossy Ibises circled low over the trees, some carrying sticks. Many more of them were seen on nests in bushes and trees in the water. About 75 Mexican Cormorants were there, one of the few birds having green irises. Pied-billed and Mexican Grebes, 200 to 300 Coots, a number of Florida and Purple Gallinules made the surface of the water a very animated scene. Several dozen pairs of Little Blue, Little Green, Louisiana, and Black-crowned Night Herons were dotted over the trees and bushes, some on the nests, some close by them. Then there were about a thousand Great-tailed Grackles, with eggs and young in various stages of development, and, as elsewhere they were the noisiest birds present. There was a flock of ten Laughing Gulls flying overhead, evidently looking for a chance to purloin an egg or two. Later this flock was augmented to about 100. On one or two of my visits to this lovely place, flocks of some twenty Wood Ibises, as many Anhingas, and several Roseate Spoonbills were also soaring high above. Although these birds appear more or less clumsy when on the ground or perched in trees, they are grace personified when in the air. It is a thrilling sight to see these great birds draw majestic circles on immovable wing, ascending higher and higher, just as gracefully and impressively as any Hawk or Eagle. The rosy tints of the Spoonbills, gleaming in the sun, make them appear as though they could not belong on earth at all, but into some super-mundane fairy realm. The Anhingas make a somewhat ludicrous impression, owing to the way they hold their long tail feathers immovably rigid during flight. The pair or two of Scissortails were clearly "out of luck." Instead of being able to quarrel with all their neighbors as is their wont, they had long ago been forced to give that up and were standing near their nest as though thoroughly disgusted, and only feebly pecked at any bird coming near them.

On a sheet of open water adjoining the wooded tract, a flock of

about thirty Ruddy Ducks was disporting itself. It was strictly a stag party, I could not detect a female among them. The females were probably attending to their young in a swamp nearby. It comes almost in the nature of a shock to a northern ornithologist when he notices waterfowl that he associates with our northern states and Canada, such as the Ruddy Duck, Coot and Grebe, and shore birds, such as Avocet, Long-billed Curlew, Godwit, etc., on the Gulf Coast at breeding time. But such is the case, and even a few of the White Pelicans in some years remain on the coast all summer. This, however, does not mean that such groups necessarily breed here, though seemingly the Coot and Pied-billed Grebe do so regularly.

What an ogre that overgrown tropical Blackbird, the Great-tailed Grackle must be to other birds, was made plain to me when, standing beside one of the largest bushes in the watery copse, I noticed one of these birds fiercely pecking at a young, but nearly fully grown Black-crowned Night Heron, not desisting till it had pushed it off into the water. This did not disturb the Heron as it swam and waded back to the bush and scrambled back into its lowest branches.

While the most interesting birds to me, as a northerner, were the Wood Ibis, the Spoonbill, the White-faced Glossy Ibis, and perhaps the Anhinga, the bird with the most outstanding personality was the Purple Gallinule. It was easily the wariest of the nesting species—the Wood Ibis and the Spoonbill were not nesting in this particular spot. While wading through the shallow water, I soon came across several of the beautiful nests of this species. One was a small well-built platform, fashioned in the middle of a small retama bush, a foot above the water, and containing four eggs. The nest was gracefully arched over with the young sprouts and twigs of the plant, making a lovely little bower, six to eight inches across, quite different from the nests of the Florida Gallinule close by. The eggs are also ornamental, being of a warm cream color, spotted and speckled with pinkish brown. Later more and larger clutches were found. The birds themselves could never be seen on the nest. Neither would they splash away noisily, as the Coot and the Pied-billed Grebe but would noiselessly sail away from the nest before one was in sight of it. They would

quickly put some bushes or trees between you and them, and alight in the leafiest part of a tree, where they would remain motionless.

The tiny Mexican Grebes had their young all out of the nests but were carrying them right along with them. There were two youngsters on the back or underneath the wings of nearly every adult. On the edge of the watery area were numerous Black-necked Stilts, flying ten to fifteen feet above one, and keeping up their highly monotonous, grating protest, *tick, tick, tick, tick, krrr, krrr*. Just once a Lesser Cliff Swallow (*Petrochelidon lunifrons tachina*) lit on a lone wire, the only indication of a fence in the place. All our walking, wading and driving in this region was done at a temperature of between 95 and 100° F.

One day we drove for forty miles across Los Laureles Ranch, a part of the great King's Ranch. This ranch, comprises nearly all of Kleberg County, and large portions of two or three adjoining counties. On Petronilla Creek, whose banks were of a dazzling whiteness from the alkali, we saw three Avocets and a Godwit, another jolt from preconceived notions. In the endless prairie on either side we from time to time saw an Audubon's Caracara, also several Sennett's White-tailed Hawks, Dickcissels, Painted Buntings, and bands of Redwings, Grackles, and White-necked Ravens, always where a windmill was pumping water for the herds of cattle and horses, the raising of which is the sole purpose of this ranch. The Ravens show no white on the outside, but are so called because the base of the feathers on the neck is pure white. Laughing Gulls were everywhere over the prairie. They were slowly flying over at a low elevation, intently peering down toward the ground, evidently looking for grasshoppers. From what one saw here, it could be pronounced a prairie bird. We passed several ponds, in which were flocks of Wood Ibises and Roseate Spoonbills. At Flowing Well, our goal, on Laguna Larga, were again seen numerous Willets, Wilson's Plovers, Caspian Terns, Least Terns (with nests), Black Terns, old and young, Black Skimmers, a band of eight Long-billed Curlews, Rio Grande Meadowlarks, Texas Horned Larks, Nighthawks, and Bobwhites. A Road-runner could be seen now and then, darting away with incredible speed. Another bird paradise, in spite of the heat and the glaring sun.

But even better things were to come. From Bishop we drove to Brownsville, and thence to Point Isabel. Many Sparrows were seen in the prairie and salt meadows between the two places, no doubt some of them Cassin's Sparrow and perhaps Botteri's Sparrow, because just here it was first seen and described, and here it has since been rediscovered. At Point Isabel I boarded a small sailing boat, of extremely shallow draught, to get to an island forty miles north in the Laguna Madre, an island famous for its bird population. From what I saw, I suspect that the Laguna could be waded through from one end to the other. It seems to be from one to three feet deep everywhere. After a sail of seven hours we reached our goal. The island in question is covered with a dense cover of cactus and other thorny plants, one more spiny than the other. It would be impassable in the middle, had not the late R. D. Camp, the warden, hacked paths through the thorny tangle. The height of the plants is not great, from a few inches to about ten feet. Wherever one looked on this sea of thorns were to be seen nests, nests large and small, but all of the one type, the little platform of sticks characteristic of the Heron family. This evidently is a Heron metropolis. Everywhere heads and necks of Herons were sticking out from or above the prickly foliage. The most abundant species is the Reddish Egret, the most gentle and least suspicious of these Herons. A few of the white phase were seen. The next most numerous species was the Louisiana Heron, evidently the daintiest and most graceful among them. Ward's Heron was represented by numerous bulky nests, which invariably were in the highest trees, if that term can be applied to the little mesquites growing there. These were the largest and wariest members of this Heron community, and had the most raucous voice. Then there were several hundred Snowy Egrets, the showiest, as well as the most pugnacious denizens of these cactus thickets. Whenever a bird of any kind, their own or another, would as much as make a move in their direction, up would go their beautiful plumes as if getting ready for a fight. Also several hundred of the more demure American Egrets were there. Stately dignity would be the epithet to apply to them. Finally, there were many Black-crowned Night Herons present, which seemed to be the plebeians, in this aristocratic

assemblage. I asked Andrews, Camp's man on the island, how many of each kind he judged were present on the island. These were his figures: 8000 Reddish Egrets, 3000 Louisiana Herons, 1000 Ward's Herons, 800 Snowy Egrets, 400 Egrets, and 800 Night Herons. When I told Camp about these figures, he said Andrews was crazy. But even if we cut the figures in half, the total is still enormous for an island which I judge is about ten to twelve acres in extent. Over the island could constantly be seen flying Turkey Vultures, Frigate Birds, Gull-billed Terns, Least Terns, and Black Skimmers. Noticeable was the absence of the Little Blue Heron. Of passerine and other smaller species nesting on the island I noted four to five pairs of the Golden-fronted Woodpecker (*Centurus aurifrons*), about so many Gray-tailed Cardinals, and several pairs of Curve-billed Thrashers, which sang beautifully. Altogether this enchanted isle is a bird paradise, such as rarely falls to one's lot to see. It is hard not to dwell at greater length upon it. There is a fine description of it by Cahn in Bent's excellent 'Life Histories of North American Marsh Birds,' p. 160.

Returning to Brownsville, Captain Camp piloted me to one of his favorite spots, a "pig ranch," on the banks of the Rio Grande. This was another bird habitat with an almost unbelievable abundance of breeding species. The day was July 1. Only on some of the preferred bird lakes in the Dakotas and the Canadian Northwest could such an abundance and variety of bird life be possible. Flycatchers, Pigeons, and Thrashers predominate here, and the following could be seen or heard almost simultaneously: Derby, Ash-throated, and Mexican Crested Flycatchers, Couch's Kingbird, Red-billed and White-winged Pigeons, Western Mourning Dove, and Mexican Ground Dove, Sennett's Curve-billed Thrasher, Sennett's Oriole, Green Jay, Great-tailed Grackle, and Redwing, (either *A. p. neutralis* or *A. p. richmondi*), the Red-eyed Cowbird, Mockingbird, Gray-tailed Cardinal, Yellow-breasted Chat, Black-crested Titmouse, Plumbeous Gnatcatcher, Texas Sparrow, Texas Wren, Texas Nighthawk, Lomita Wren, Nonpareil, Golden-fronted Woodpecker, Black-crowned Night Heron, Louisiana Heron, Cabot's Tern, Merrill's Parauque, and English Sparrows,—even here in this bird paradise. Camp, who had not left the automobile

on account of rheumatism, had seen a Black-throated Sparrow, in addition to the others. I took also a female Summer Tanager, which is not supposed to occur here at all, and saw the male at the same time. The only species found in the north seen here was the Yellow-billed Cuckoo. We missed seeing the Vermillion Flycatcher, which occurs rather commonly here, and the Chachalaca, but we heard it later. All this within about the space of an hour!

Returning to Bishop, I found nesting activities still going on strongly. Three Purple Gallinule nests were found, with five, eight, and nine eggs respectively, one of the Florida Gallinule with eleven eggs. Just why nesting in the South should go on so much longer than in the North, seems difficult to understand, unless it be that many previous sets of eggs are broken by the Great-tailed Grackles and Gulls, or that the abundance of insect food induces the birds to have more clutches than farther north, or perhaps the nearly continuous warm weather has some physiological effect on the birds.

To cap the climax, we made a trip to Bird Island, near Corpus Christi. This is a low, flat, sandy island with an area of about fifteen to twenty acres. There is a sparse vegetation of low plants, from six to twelve inches high, including some prickly pear cactus. It seems incredible what a congestion of bird life is found on this island, dwarfing even the numbers on the island near Point Isabel. One asks himself, why are these few islands picked out by the birds for such inordinate crowding? The first reason should be, the great abundance of food for old and young in the surrounding water. But that holds good for the islands nearby, which are not, or at least not extensively, used by birds. Another reason suggesting itself is the safety from marauding coyotes, common on the mainland, foxes, skunks, wolves, armadillos, etc., or should it be a desire for exaggerated sociability? There were present on and over the island at least 5000 to 10,000 Laughing Gulls, 5000 Caspian Terns, 5000 Royal Terns, 3000 Brown Pelicans, 200 Cabot's Terns, 200 Black Skimmers, 3000 Louisiana Herons, 100 Reddish Egrets, and 100 Ward's Herons. The last-named, shy as they are, here had to make their nests on cactus a foot or two high, for the simple reason that there was nothing higher on the island. About 5000 of the young of the Gulls and Terns were

crowded together in one place. They could not fly, and we were able to herd them about at will for the purpose of taking pictures of them. Overhead there was a steady stream of the adults coming in from all directions, each carrying one or several minnows in the bill. It seemed impossible that each bird should be able to find its own young in that mob. The young Pelicans were huddled together in small groups. When one came close to them they would invariably eject small fish from their bills. The nest of a Reddish Egret I photographed contained two brown young and a white one. No white adult was seen. There can be no doubt that the white form of this species is only a color phase. The trip to this island, and the walking around on it in the intensely hot, glaring sunlight, is a real hardship. But we felt happy for having been privileged to visit this wonderful island. A few days later I again made my way northward, where the birds in the woods in July were few indeed in contrast.

River Forest, Illinois.

FURTHER RECORDS OF THE BIRDS OF THE BOSTON
PUBLIC GARDEN FROM THE NOTES OF
HORACE W. WRIGHT.

BY GORDON B. WELLMAN.

IN May, 1909, Horace Winslow Wright published his "Birds of the Boston Public Garden"¹ which covered continuous observations from May 1900 to the close of 1908. After the publication of this book he continued to visit the Garden and record the birds until his death on June 3, 1920. In 1925, Morris Brounstein published "The Birds of the Boston Public Garden, 1921-1924."² The following article supplies some of the data and a list of the added species found in Mr. Wright's records from 1908 to 1920, which together with his published book and Mr. Brounstein's published notes completes twenty-five years of observations in the Boston Public Garden.

During the eleven and a half years after 1908 that Mr. Wright continued his walks in the Garden there are increased records for all but ten of the one hundred and twenty species recorded in his book. The species not seen again were Golden-eye Duck, Woodcock, Saw-whet Owl, Hairy Woodpecker, Prothonotary Warbler, Golden-winged Warbler, Palm Warbler, European Goldfinch, Java Sparrow and European Blackbird. Only one of these is reported by Brounstein, a Woodcock, seen by Higbee, March 28, 1924, outside the Garden proper in the Granary Burying-Ground.

For all the other species seen before 1908 there are later observations, often copious notes and extended information in the unpublished record books. The following additional records are of particular interest.

Larus argentatus. HERRING GULL.—A summer record, four birds were seen by G. M. Allen, on June 20, 1914, "at about six P.M. over the Basin and at a good height. Shortly they swung off toward Beacon Hill."

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.—A pair

¹ Birds of the Boston Public Garden, A Study in Migration. By Horace Winslow Wright. Houghton Mifflin Co., Boston 1909.

² The Birds of the Boston Public Garden. 1921-1924. By Morris Brounstein. H. W. Bailey Press. South Braintree, Mass. 1925.

found nesting in the Garden by E. E. Caduc, June 28, 1909, in a snowball bush near Arlington Street. Four young were successfully reared.

Lanivireo flavifrons. YELLOW-THROATED VIREO.—Nest found by E. E. Caduc, June, 1909. The male was present and singing from May 28 to June 24. The nest was built fifty feet from the ground in an elm at the corner of the Common at Beacon and Charles Streets.

Oporornis agilis. CONNECTICUT WARBLER.—Three added records on September 21, 1910, seen by W. M. Tyler, "in the same bed of roses" as observed in 1908, on October 20, 1914 and October 29, 1916.

Icteria virens virens. YELLOW-BREASTED CHAT.—A second record on May 15, 1916. This bird was found dead on May 19, "probably killed by a Grackle." The mounted specimen was given to the Brookline Bird Club.

Nannus hiemalis hiemalis. WINTER WREN.—Three added records, one seen October 12, 1911, one April 10, 1915, seen by Miss Simpson and one October 23, 1917. The previous record was in the Granary Burying-Ground, seen by Frances H. Allen, April 25 and 26, 1898.

Poliophtila caerulea caerulea. BLUE-GRAY GNATCATCHER.—A second record on May 18, 1920,¹ "a beautifully marked bird with clear white breast, blue-gray back and large display of white in the tail."

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.—Autumn records were made in 1909, 1911, 1913, 1914 and 1917. The dates run from September 24 to October 17.

Hylocichla guttata pallasii. HERMIT THRUSH.—Many records show the abundance of this species, such as October 9 to November 7, 1909, "about twenty-five birds"; on April 7, 1911, twelve individuals and about forty birds for that year; October 17, 1912, seventeen birds on one day.

The following is an annotated list of the twenty-seven species added during the years 1909 to June, 1920. The notes are all copied from Mr. Wright's journals.

Gavia immer. LOON.—May 14, 1914, two seen in flight by Wyman Richardson.

Larus marinus. GREAT BLACK-BACKED GULL.—January 7, 1916, one seen circling overhead with about twenty-five Herring Gulls, distinctly identified.

Mergus americanus. MERGANSER.—March 10, 1912. three flew over the Garden southward.

Anas platyrhynchos. MALLARD.—A pair from the Fens, probably, lived in the Garden in 1910; nine ducklings were hatched, five were raised; the Duck left the nest with her brood on May 12. A second brood was hatched later in the season and raised eight young. Both nestings were on the island.

Anas rubripes tristis. BLACK DUCK.²—May 22, 1910, a pair flew in and alighted on the pond among a family of Mallards and remained

¹ The Auk, XXXVII, 1920, p. 464.

² The Auk, XXXVI, 1919, pp. 355-367.

fifteen or twenty minutes. A pair nested on the island April 18, 1911; the female was on the nest about two weeks when she deserted. In 1914, there was an unsuccessful attempt to nest; 1915, ten young were raised; 1916, five young; 1917, eight young; 1918, unsuccessful; 1919, the nest was broken up; 1920, June 2, a Black Duck was seen on the island at 7:40 A.M., apparently settling on a nest. (Mr. Wright's record is broken at this point. He died the next day, suddenly, at his summer home in Jefferson, N. H.)

Botaurus lentiginosus. BITTERN¹.—March 25, 1917, there was the unusual occurrence of a Bittern perching in a tree, where it remained all day.

Ardea herodias herodias. GREAT BLUE HERON.—October 6, 1911, one was seen flying south-west; March 31, 1913, four were seen flying south-east; May 4, 1913, one was seen flying over the Charles River Basin.

Butorides virescens virescens. GREEN HERON.—May 16, 1918, one perched in an elm tree beside the pond and took several flights about and called several times.

Phasianus colchicus torquatus. RING-NECKED PHEASANT.—April 5, 1917, a male bird was seen by F. H. Bull. April 17, 1917, a female was seen by Mr. Wright crouching on Monument Hill of the Common at 7 o'clock A. M.; later, 7:20 A.M., it was seen in the Garden by Miss Simpson.

Falco peregrinus anatum. DUCK HAWK.—One seen by the pond in the Garden, October 19, 1910 and again October 25. It flew away each time and identification was not absolute. December, 1912, one was seen repeatedly by Chester Day about the tower of the Baptist Church, corner of Commonwealth and Clarendon Streets. Later it was shot by Dr. Coffin and it is in the collection of the Boston Society of Natural History.

Falco columbarius columbarius. PIGEON HAWK.—One seen clearly April 8-10, 1912, an immature bird. October 20, 1914, one was in the Garden; April 25-28 and again May 2, 1915 one was seen. The latter date it was seen perching on the weather vane of the Arlington Street Church, eating a pigeon.

Pandion haliaetus carolinensis. OSPREY.—May 2, 1914, two were seen in flight by Wyman Richardson.

Asio wilsonianus. LONG-EARED OWL.—One seen perching in the Garden at noon, April 10, 1916, by Mrs. Mary M. Kaan and Miss Hale. One seen from eleven o'clock A.M. to five P.M. on the same perch, April 23, 1918, by Miss Hale.

Antrostomus vociferus vociferus. WHIP-POOR-WILL.—On May 7, 1918, a female bird perched all day in a hawthorn near the Ether Monument. Seen by many observers.

Myiarchus crinitus. CRESTED FLYCATCHER.—One was heard calling on May 21, 1912. One was seen May 21, 1918 and two were seen May 20, 1920.

¹ The Auk, XXXIV, 1917, p. 476.

Empidonax traillii alnorum. ALDER FLYCATCHER.—One heard to give the "pep" call on May 17, 1912 and May 26, 1914. Both records are questioned in Mr. Wright's journal.

Sturnus vulgaris. STARLING.—First observed in the Garden, May 27, 1916. Nest with young in a Flicker's hole was found on the Common on that date. November 17, 1916, six were seen in the Garden. A second nesting was in 1917 and in 1918-1919 the Starlings were generally distributed through the whole Boston region.

Sturnella magna magna. MEADOWLARK.—March 27, 1912, one flew in and alighted in a tree top beside the pond. It soon flew off in the direction of the Common. One was seen May 6, 1916; one May 17, 1917; one May 19, 1918 on the Common.

Emberiza citrinella. YELLOW HAMMER (EUROPEAN).—On May 18, 1910, one was in the Garden, feeding in the grass near Boylston Street with several House Sparrows. On May 15, 1911, one was seen and it sang. It remained through the morning and was also identified by Miss Harriet Richards.

Loxia curvirostra minor. CROSSBILL.—Three birds flew over the Garden calling, May 27, 1911. Four birds were in the Garden, May 3, 1917, and flew away northeasterly.

Plectrophenax nivalis nivalis. SNOW BUNTING.—A flock of fifty passed over the Garden at two P.M., March 10, 1916. Seen by Dudley James.

Passerherbulus nelsoni subvirgatus. ACADIAN SHARP-TAILED SPARROW.—One feeding along the grass border at the stone curbing of the pond, nearly abreast of the island. It was seen at thirty feet and distinctly identified. It was also identified independently by Miss Grace M. Snow.

Passerina cyanea. INDIGO BUNTING.—A male bird was in the Garden, May 15, 1909. A male was seen in the Garden by Miss Hale, May 23, 1913. One was in the same tree May 12 to 19, 1915.

Vireo griseus griseus. WHITE-EYED VIREO.—One was singing on May 22, 1911 and was well seen. Besides his song, he gave a variety of notes, catbird "mew" and song and Towhee's call.

Oporornis philadelphia. MOURNING WARBLER.—One was in the Garden, May 28, 1916. The song was given four times.

Wilsonia citrina. HOODED WARBLER.—A male in full spring plumage remained eleven days, October 2-12, 1913, during a period of stormy weather, thick fog with drizzle at times; the sun hardly appeared during this time and there was no marked change in temperature. He frequented three or four silver maples near the corner of Charles and Beacon Streets and left on the first clear night which was also a moonlight night. He was first seen by Miss Hale and then by many observers.

Penthestes hudsonicus littoralis. ACADIAN CHICKADEE.—One was seen in an English hawthorn on November 2, 1913. At this time there was an incursion of this species in the vicinity and many records.¹ (Pre-

¹ The Auk, XXXI, 1914, pp. 236-242.

sumably this movement of *Penthestes hudsonicus* about Boston in 1913 was the same as in 1916 when the species was identified as *nigricans*, not *littoralis*.¹)

According to Mr. Brounstein's published notes, he added nine species to the birds previously seen in the Garden. This number added to the list in Mr. Wright's book and the list above makes one hundred and fifty-six species observed in the Garden over a period of twenty-five years. May 21, 1912, seems to be a record day, perhaps the record day.² On that day Mr. Wright saw one hundred and fifty migrants of forty species in the Garden; this included one hundred and seven Warblers of eighteen species.

¹ The Auk, XXXIV, 1917, pp. 160-162.

² Wright, op. cit. pp. 36-40.

Wellesley College,
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NOTES FROM EASTERN LONG ISLAND, NEW YORK.

BY W. TODD HELMUTH.

THE following notes have been selected for presentation in 'The Auk,' because I believe they possess general, rather than merely local, interest. They have been picked from a mass of data accumulated during the past year, on Southeastern Long Island, between Montauk Point and the eastern fourth of Shinnecock Bay, and south of Peconic Bay, a region long familiar to me. Familiarity with the region, however, makes it hard for me to decide, in many cases, where local interest ends and general interest begins. I have discarded many items which seemed to me of less than general appeal, although of considerable local interest, and I believe that those finally included here will be found to be worthy of public record.

For the fact that the records are almost without exception sight-records, I do not apologize; but I regret that I must, on that account, use many more words than I would need if I had skins which I might silently present as evidence. Verbal descriptions are not always convincing, and are usually foggy besides, but I have tried to give only such records as fulfill all of Mr. Griscom's excellent criteria for valid sight observations.

Larus marinus. BLACK-BACKED GULL.—This bird, in 1929, was a fairly common, non-breeding summer resident on Eastern Long Island, and was recorded 33 times during July and August.

Larus minutus. LITTLE GULL.—I have another record to add to the recent ones of this species (1929), in the New York City Region. On January 2 and 3, 1930, a single adult was seen at close range, and for long periods of time, at Georgica Pond, Easthampton, L. I. The bird was seen with other Gulls, on the mud-flats, and my eye was drawn to it at once by its distinctive manner of feeding. It was more active than any of the four other species of Gulls on the flats, for it walked rapidly over the mud with short, quick, steps, like a domestic Pigeon, pecking sharply first on one side, then on the other. It was restless, and was continually fluttering from the edge of one small pool to another. On the ground, it was a gray-mantled, white bird, about as large as a very stout Black-breasted Plover, with short, bright-red legs and a dark bill which was also short and thin. Its white tail and the white tips of its primaries were then fairly conspicuous. As soon as it flew, the sooty black under-

surfaces of its wings flashed out, and marked it out sharply from the other Gulls. Its flight was Tern-like and very buoyant, and was distinctly unlike that of the larger Bonaparte's Gulls with which it was associated. Its mantle was of a paler, softer, more ashen, shade than theirs, and its wings very clearly lacked all black markings, as well as the broad, white, triangular area on the first joint, so prominent a mark of the Bonaparte's Gull. On the ground, it was even smaller in my eyes than when it flew. The cheeks were marked with two vague dusky blotches, and there was a narrow black streak across the nape. The pattern of the under-wings was that of a Black-backed Gull's when seen from below, against a bright sky.

I watched it through an 8-power field-glass (prism type), and through a 25-power monocular telescope, at all sorts of ranges. Often I could have killed it, and twice I levelled a gun at its bill as it fluttered some 30 yards from me, but decided each time that it had better live. Its presence in America was so adequately recorded by other observers in the spring of 1929, that there seemed no need for any further evidence of its occurrence, and besides, I was myself quite satisfied with the identification I had made!

***Sterna caspia*.** CASPIAN TERN.—Recorded on May 9, 1929, at Bridgehampton, two birds. Also, four times in the summer, between September 24 and October 5. The last, a pair of birds that appeared at Mecox Bay on October 2 and remained until the fifth.

***Sterna forsteri*.** FORSTER'S TERN.—Recorded 39 times between July 16 and October 16. The largest number seen on any one day was 70, on August 18.

***Chlidonias nigra surinamensis*.** BLACK TERN.—One seen on June 6, at Georgica Pond, Easthampton.

***Rhynchops nigra*.** BLACK SKIMMER.—A young bird of this species appeared on the sand-flats of Georgia Pond, at Easthampton, on October 16. It seemed to have difficulty in alighting, as it toppled over on its side again and again, after much fluttering, butterfly like, above the sand. Several times it composed itself for a few seconds but always rose again and resumed its hovering over another spot. When pressed, it flew well and strongly, and at last went bounding away across the pond.

***Phalacrocorax carbo*.** COMMON CORMORANT.—An immature bird was seen on July 31, with four Double-crested Cormorants; two, both immature birds, were seen on August 25, with Double-crested Cormorants; one immature example and an adult, seen with Double-crested Cormorants, on September 1, and four on September 2. All these birds were seen perched in rows upon the stakes of "fish-traps," in Gardiner's Bay, and although seen at long range, were well identified. I do not include several other probable records, when the standard control afforded by the smaller and commoner Double-crested Cormorant was not available.

***Phalacrocorax a. auritus*.** DOUBLE-CRESTED CORMORANT.—This species like the Black-backed Gull, has become a fairly common, non-breeding, summer resident on Gardiner's Bay. It was noted throughout the summer, usually in numbers of from 10 to 50 or 60 per day.

Anatidae. Of various species were noted more frequently during the summer of 1929 than might be expected. No birds that did not prove themselves able to fly are included in the following list.

1. **RED-BREASTED MERGANSER.**—Many records throughout the summer, the largest number seen in one day being 10, on August 9th and 18th.

2. **MALLARD.**—Recorded from July 31 to August 6, and from August 8 to August 12. Occasionally others were seen throughout August, with Black Duck.

3. **BLACK DUCK.**

4. **BLUE-WINGED TEAL.**—Two at Easthampton, on July 31.

5. **PINTAIL.**—Many records, from July 19 until the arrival of migrants, in September.

6. **WOOD DUCK.**—Occasionally in July, August, and September.

7. **CANVASBACK.**—Three on August 2, at Shinnecock Bay; one, on August 9, at Montauk.

8. **SCAUP** (probably **GREATER SCAUP**).—27 flew into Georgica Pond, at Easthampton, on July 24. Others almost daily throughout the summer.

9. **SCOTERS.**—Of all three species, were seen daily throughout the summer, chiefly in Gardiner's Bay. In varying numbers, to 180 in one day. A few of these were crippled birds, but many were not.

10. **RUDDY DUCK.**—Recorded on July 27, two, in Georgica Pond; these, and at least 8 other individuals, observed almost daily until the arrival of migrants.

Casmerodius egretta. **AMERICAN EGRET.**—Recorded on 19 occasions, many different individuals; the first were seen on July 25, at Montauk, the last on September 28, at Easthampton.

Hydranassa tricolor ruficollis. **LOUISIANA HERON.**—Among the Southern Herons that appeared in the Northeastern States this summer was at least one Louisiana Heron, which appeared at Georgica Pond, Easthampton, L. I., on August 9. It was seen again on the 10th, but not thereafter. Its attenuated figure, blue-black wings, and the sharp line of demarcation between the dark breast and white belly were all familiar field marks of the bird, for I am well acquainted with it.

Florida caerulea. **LITTLE BLUE HERON.**—Eastern Long Island was invaded this summer by "White Herons" from the south, in common with other northeastern States, and the Little Blue Heron was first seen by me on Montauk Point, July 26 and last seen on September 24th. During mid-August, almost every pond held one or two of them. The greatest number seen in any one day was 41. No adults were seen, and no Snowy Egrets, although I looked for them very carefully.

Nyctanassa violacea. **YELLOW-CROWNED NIGHT HERON.**—An immature bird of this species was discovered in a fresh-water cat-tail swamp near Bridgehampton, on September 2, and was seen every day thereafter until September 13th. I had many opportunities to study it at close range, and occasionally in direct comparison with Black-crowned Night Herons. I was always impressed by its thinner, longer, neck, rounder

head, and flatter body, when comparing it with the common species. It frequently was found in a dry pasture, grown up with Golden-rod and Queen Anne's Lace (*Daucus*) about 500 yards from its favorite swamp, to which it always fled when disturbed. I saw it attacked twice by Marsh Hawks.

Coturnicops noveboracensis. YELLOW RAIL.—Knowing nothing of the real status of this bird, except that it is generally regarded as rare, I can do no more than record my first sight of it, and hope that the record will be of some point. I flushed one from between my feet, at Mecox Bay, on September 2, in short grass at the edge of a cattail bed. It fluttered only a few yards, and dropped down into the short grass again, whereupon I rushed up to the spot of its disappearance as quickly as I could, but I never saw it again. The cover did not seem adequate to hide a bee, but this silly Rail had no trouble in effacing itself completely.

Gallinula chloropus cachinnans. FLORIDA GALLINULE.—Of late years this bird has been growing steadily commoner on Eastern Long Island, where formerly it was rare. The height of its fall migration near Easthampton occurred on October 10th this year, when 23 birds were observed, the first having appeared on September 18, and the last one disappearing on October 25.

Steganopus tricolor. WILSON'S PHALAROPE.—Two of these large, and mincingly restless Phalaropes were observed at Shinnecock Bay, on September 14 and 15, during a severe southwesterly storm. This is well out of their normal range.

Pisobia bairdi. BAIRD'S SANDPIPER.—I have seven sight records of this Sandpiper, which seems to be less rare than it is supposed to be. It was seen first on August 4, last on September 15. Two birds were seen on two separate occasions. The total number for the year was nine birds. I learned to recognize this species in the field several years ago, and have never considered it particularly difficult to identify in life since then, when I frequently substantiated my diagnosis by collecting the bird. I no longer need to do that. The strong wash of tawny-buff across the upper breast and face of Baird's Sandpiper is characteristic, in connection with its medium-small size, and is better seen at a moderate distance than when the bird is just at the limit of near-vision through a glass. I consider it to be as easy a bird to identify in life as the Savannah Sparrow, which nobody hesitates to name at a glance.

Limosa haemastica. HUDSONIAN GODWIT.—This bird seems to be rare enough in the Atlantic States to merit record in 'The Auk' whenever it is seen. A fine specimen was seen, and carefully identified, on October 16, at Shinnecock Bay, where it was resting in the salt-marsh with Greater Yellowlegs and a late-lingering Stilt Sandpiper.

Numenius americanus. LONG-BILLED CURLEW.—Another shore-bird whose rarity in the Atlantic States makes the record of every occurrence worthy of note. This year it appeared on Long Island at least twice, both times at Mecox Bay. I had perfect opportunities to observe

it each time, but no Hudsonian Curlews were present for control comparison. In so striking a species, this does not invalidate the record, it seems to me. I am familiar with the bird, having seen it before on Long Island, and in California, where it is common. My other Long Island records have already been published in 'The Auk,' Vol. XLI, No. 2, p. 352, with one exception, a bird seen on October 15, 1924, at Bridgehampton, L. I.

Centurus carolinus. RED-BELLIED WOODPECKER.—This vivid Woodpecker was discovered near Easthampton on July 15, by my brother, John L. Helmuth, who knows the bird well. I myself found the bird later in the same day, with two Downy Woodpeckers and a number of Prairie Warblers, in a dry patch of scrub-oak woods, not far from the spot where it was first seen. On September 2, while looking through a dense thicket on Montauk, I heard the unmistakable notes of a Red-bellied Woodpecker on the other side of the thicket, and after extraordinary difficulties with some cat-briar tangles, I found the bird on the trunk of a large Post Oak. Its silky red head and vividly striped back looked exotic and out of place against the drab Long Island scenery. It seems likely that this was the same bird seen earlier in the summer.

Tyrannus verticalis. ARKANSAS KINGBIRD.—Any Kingbird seen as late in the summer as October fourth seemed to me worth investigating, and the one I found on the edge of a thicket at Montauk Point on that date well repaid a careful examination, for it proved to be a good example of the Western (Arkansas) Kingbird. I am familiar with the species, and also with Cassin's Kingbird, and I felt that the bird in the small cherry-tree was one of these two as soon as I saw it, even at long range, and in silhouette. It displayed its white-edged tail-feathers well, and presented its burly shape to my examination from every angle. The bird was in the same tree several hours later, but was not found anywhere next day.

Junco hyemalis. SLATE-COLORED JUNCO.—A Slate-colored Junco becomes important when seen in mid-summer. A single bird of this species was found on the edge of Gardiner's Bay (Hither Woods, Montauk), on July 16, and was seen from time to time, in the same locality, until July 25, when it disappeared.

Baeolophus bicolor. TUFTED TIT.—If I may be permitted to add a record from the year 1928, I wish to state the occurrence of a pair of Tufted Tits at Easthampton, in a Pitch Pine woods, on December 7. They were seen with Chickadees and Nuthatches, and my attention was called to them by their loud, and characteristic whistles, and harsh Chickadee-like calls. One of them was seen on the next day, in a heavy snow-storm, but not thereafter. Its occurrence on Eastern Long Island is almost accidental.

NOTES ON BIRDS OF THE DELTA REGION OF THE PEACE AND ATHABASCA RIVERS.

BY CLARENCE S. JUNG.

IN the northeast corner of the Province of Alberta, Canada is the unique geographical phenomenon of two great rivers joining to form a delta of such magnitude as is found as a rule, only when rivers empty into the sea. The Athabasca and Peace Rivers have deposited vast quantities of alluvium at their joining point, and have filled in the west end of Lake Athabasca until its shoreline has been pushed about sixty miles east of its ancient margin. This filled-in country is a vast network of channels, sloughs, shallow lakes, and muskeg or swamp. The largest body of water in the delta is known as Lake Claire. It is about 35 miles long and 30 miles wide, and so shallow that an outboard motor can be used only in the deeper portions of the lake. Beside being fed by the Athabasca and Peace Rivers a third stream of some magnitude, the Birch River, enters into the lake from the southwest.

Along the rivers and watercourses are to be found dense growths of Balsam Poplar (*Populus balsamifera*) and Black Spruce (*Picea mariana*) back of which vast marsh meadows spread out mile after mile. There is no high land to be found except the occasional outcroppings of granite toward the east portion of the area. In fact in traversing the country in June, it is sometimes difficult to find a place sufficiently dry for a comfortable camp.

The country is quite wild, being used only for trapping and hunting grounds in winter, by the Indians and few Whites who live in the region. A vast wild-life refuge is being established here by the Canadian Government which, with an eye to the future development of its northern empire, has set aside over 17,000 square miles for the perpetuation of its animal and bird life.

Here the only remaining herds of wild buffalo on the continent are to be found. In the spring and fall the Geese that nest in the country bordering the Arctic Ocean stop in this district in countless numbers to feed and fatten before their long flights. Even in the absence of these birds in June, evidence of their abundance was

to be noted in the places where they had preened themselves. One could often find locations in meadows and along the river banks where, under the grass, there was a matting of the sloughed feathers of Ducks, Geese, and Swans.

It was to this region that the writer and Mr. Jos. Simons of Chicago went to spend the month of June, 1928, with the objective of procuring some motion pictures of the bird life for the Milwaukee Public Museum. Leaving Edmonton June 5, we reached the end of steel at Waterways the next day. Here several days were spent waiting for a steamer to take us north, down the Athabasca River, to the lake of that name. The final jumping-off place was the little settlement Chipewyan, from which we went west into the wet flat country, across Lake Claire and up the Birch River some twenty miles. Then retracing our route we recrossed Lake Claire, and spent five days on the Quatre Fourches Channel, one of the largest streams in the delta. A trip was taken north down the Slave River as far as Smith Rapids and Ft. Smith, famous ornithologically for the colony of White Pelicans that have nested on the inaccessible islands of the rapids since time immemorial. The return trip began June 28.

The following are notes of the avian life observed during our sojourn in the region.

Colymbus auritus. HORNED GREBE.—Six males in fine breeding plumage seen June 18 in a little slough near the Quatre Fourches River.

Larus argentatus. HERRING GULL.—Common throughout the region.

Larus brachyrhynchus. SHORT-BILLED GULL.—Common around Fitzgerald and Ft. Smith on the Slave River. They were feeding on dead bugs and insects that gathered in the eddies of the river. Garbage thrown to them was not touched by the birds, although freely taken by Herring Gulls among them. The field mark that most easily distinguishes them from their larger cousins is the eye, which appears much darker due to the carmine eye-ring. Three males, collected June 25, are in the Milwaukee Public Museum.

Larus franklini. FRANKLIN'S GULL.—This species seemed much more common than the next and was observed on Lake Claire and the Birch River daily flying in a north-easterly direction mornings, and returning south-west evenings. Preble¹ does not include this Gull in his list of birds for the Athabasca-McKenzie Region.

¹ North American Fauna No. 27—A Biological Survey of the Athabasca-McKenzie Region by E. A. Preble.

Larus philadelphia. BONAPARTE'S GULL.—A few seen on Lake Athabasca.

Sterna hirundo. COMMON TERN.—Observed along west shore of Lake Claire.

Chlidonias nigra surinamensis. BLACK TERN.—Very common nester. Eggs heavily incubated June 15.

Anas platyrhynchos. MALLARD.—Fairly common nester. Two clutches of ten and twelve eggs found June 18 were heavily incubated.

Mareca americana. BALDPATE.—Several mated pairs observed, but no nest found.

Nettion carolinense. GREEN-WINGED TEAL.—Ducklings two days old and their parents were photographed on the Quatre Fourches River June 17. Several flotillas of these youngsters seen would indicate that they are the first Ducks to hatch.

Querquedula discors. BLUE-WINGED TEAL.—Less common than the preceding.

Spatula clypeata. SHOVELLER DUCK.—Shares with Pintail the honor of being the most common Duck in the country visited.

Dafila acuta. PINTAIL.—These graceful birds were everywhere. Two nests with pipped eggs found in a hay meadow June 11.

Nyroca americana. REDHEAD.—One pair observed in a pond near the Quatre Fourches River, June 19, bowing heads and swimming around one another.

Nyroca valisineria. CANVASBACK.—Three nestings located. These birds are extremely wary, and when flushed, will not return to their eggs as long as the intruder is within visible distance of the nest. Birds flushed at three one afternoon had not returned at ten o'clock that evening. The eggs of two clutches were quite prominently blood smeared. This, I was told by a trapper, indicated that it was the female's first nesting, that in laying the first clutch there is some bleeding in the ova duct.

Nyroca affinis. LESSER SCAUP DUCK.—One small flock seen on one of the smaller lakes.

Glaucionetta clangula americana. GOLDEN-EYE.—A pair had a nest in the neighborhood of our camp and would race up and down the Quatre Fourches River several times a day. They investigated tree holes at times in the course of their daily racings.

Charitonetta albeola. BUFFLE-HEAD.—One of these would be seen flying down the river, by our camp on the Quatre Fourches. The bird would stop to examine two tree holes directly across from our site, and then pass on around a bend in the river.

Erismatura jamaicensis rubida. RUDDY DUCK.—A flock of four of these diminutive ducks noted in a pond about twenty miles south of Waterways on June 7.

Anser a. albifrons. WHITE-FRONTED GOOSE.—One flock of eight passed overhead while I was engrossed in photographing some young Canvasback Ducks June 19.

Branta c. canadensis. CANADA GOOSE.—The one great disappointment of our visit to this region was the almost complete absence of Geese. We had been told of the myriad Geese and Wavies, grey and white that are to be found in the vast marsh meadows of the delta country, and thought that by getting into the country as soon as the ice was off the lakes, that we would be in good time to see the impressive spectacle of these birds in great numbers. Ice still covered the east end of Lake Athabasca when we reached Chipewyan, and yet we were too late to see the Geese. In our wanderings we flushed only one flock of seven of this species.

Cygnus columbianus. WHISTLING SWAN.—One lone bird seen on Lake Claire, June 13, and one heard late at night near our camp on the Quatre Fourches River, June 20.

Botaurus lentiginosus. BITTERN.—Fairly common on the Birch River and Lake Claire.

Ardea h. herodias. GREAT BLUE HERON.—A single bird lit in a tree a few hundred yards down the river from our camp on the Quatre Fourches. We were told that the birds breed along the south shore of Lake Athabasca.

Porzana carolina. SORA RAIL.—Common throughout the region.

Fulica americana. COOT.—Common breeder.

Steganopus tricolor. WILSON'S PHALAROPE.—One male collected on the east shore of Lake Claire June 11.

Gallinago delicata. WILSON'S SNIFE.—Where ever we went, the aerial gyrations of the 'Jacks' were evening entertainment for us. As many as eight were observed at one time flying over a hay meadow, producing their weird feather whistling. Three young about forty-eight hours old were banded June 18.

Crocethia alba. SANDERLING.—One patrolled about a half mile of the shore at Chipewyan.

Totanus flavipes. YELLOW-LEGS.—Common breeder. A pair of these birds made great efforts to draw me from a spot where I was making movies of them. Upon very careful scrutiny of the surrounding bit of swamp, I discovered their fretfulness due apparently to the presence of three young Wilson's Snipe, for when the little ones were found, the Yellow-legs made a great to do of me, while the parent Snipe skulked around in the grass affecting a broken wing.

Actitis macularia. SPOTTED SANDPIPER.—Very common along all water courses.

Squatarola squatarola. BLACK-BELLIED PLOVER.—Six in rather ragged plumage seen sitting on a log near the mouth of the Birch River June 13. They were probably immature non-breeders.

Oxyechus vociferus. KILLDEER.—Nesting with eggs heavily incubated June 20.

Arenaria interpres morinella. RUDDY TURNSTONE.—One in poor plumage was in company with Black-bellied Plover at the mouth of the Birch River.

Bonasa umbellus. RUFFED GROUSE.—Not very common. We were told that in former years they were very abundant, and that the decimation of these fine birds was due to parasitic diseases.

Zenaidura macroura carolinensis. MOURNING DOVE.—On June 11 one was seen feeding along a path in Chipewyan. The bird was accommodating enough to remain on the pathway while I ran a mile or more to where my duffle lay, dug a gun from the bottom of the bag, and returned to the bird. Fortune favored the bird however, for as I approached it, a stray sled dog became interested in my caution, and chased the pigeon into some heavy brush. This species has never been reported from the Athabasca-region.

Circus hudsonius. MARSH HAWK.—Fairly common.

Astur a. atricapillus. GOSHAWK.—An individual noted skirting a meadow in which numerous nesting Ducks were found.

Buteo b. borealis. RED-TAILED HAWK.—Commonest Hawk seen.

Buteo platypterus. BROADWINGED HAWK.—One observed flying low along the Quatre Fourches Channel.

Archibuteo lagopus sanctijohannis. ROUGH-LEGGED HAWK.—A pair of these birds in the dark phase nested in a fine stand of Black Spruce on the west bank of the Athabasca River about fifty miles north of Ft. McKay. There were two half grown young in the nest that could be seen from the ground.

Falco peregrinus anatum. DUCK HAWK.—A pair nested on an inaccessible rocky ledge about five miles from our camp on the Quatre Fourches.

Cerchneis s. sparverius. SPARROW HAWK.—A lone individual was noted hunting in company with the Broadwinged Hawk. These two skimmed over the tree tops for a half a mile around our camp, the Broadwing, always a few yards in the lead. They spent the better part of an afternoon within sight, and were indeed an unusual hunting combination.

Asio flammeus. SHORT-EARED OWL.—Quite common. Had a wing-tipped one as a camp pet for a week. A spectacular encounter between one of these Owls and a Marsh Hawk was one of the most thrilling experiences of the entire trip. The Owl pursued the Hawk, flying above the retreating bird. Hovering some ten feet above the Hawk, the Owl would suddenly swoop down in a fierce attack. In the same instant the Hawk would half turn like a tumbler pigeon, in such a manner so as to strike the Owl with its talons as that bird passed. The dexterity and maneuver of the two birds was amazing. The attack was repeated seven or eight times. It is to be supposed that the Hawk disturbed the Owl's nest and was being driven away.

Bubo virginianus subarcticus. ARCTIC HORNED OWL.—One noted along south shore of Lake Claire harassed by Crows.

Ceryle a. alcyon. BELTED KINGFISHER.—Fairly common.

Dryobates v. villosus. NORTHERN HAIRY WOODPECKER.—Common throughout the wooded areas.

Sphyrapicus varius. YELLOW-BELLIED SAPSUCKER.—Common breeder.

Colaptes auratus luteus. FLICKER.—Common breeder.

Chordeiles virginianus. NIGHTHAWK.—One observed on the Birch River June 14.

Tyrannus tyrannus. KINGBIRD.—Common nester. Eggs June 16.

Sayornis phoebe. PHOEBE.—Very common.

Empidonax trailli alnorum. ALDER FLYCATCHER.—To be seen along all the river courses.

Empidonax minimus. LEAST FLYCATCHER.—Very common nester. The chebeck call is to be heard along all the water courses in the region.

Otocoris alpestris hoyti. HOYT'S HORNED LARK.—It was probably this sub-species that was seen near the railroad tracks twenty miles south of Waterways.

Perisoreus canadensis. CANADA JAY.—Fairly common in the black spruce timber.

Corvus b. brachyrhynchos. CROW.—Common. An unusual note was made regarding a nest which on June 15 contained three eggs and one young bird about a week old. The next morning when the nest was visited a fourth egg had been added. There were three Crows in the neighborhood, who so far as I could tell spent most of their time bothering an Arctic Horned Owl. Possibly these three birds had a community nest. It is to be noted that while it has been reported that these birds do considerable damage to the eggs of nesting waterfowl, there was no evidence anywhere that the Crows had caused disturbance.

Molothrus a. ater. COW BIRD.—Abundant around McMurray. Called Buffalo Bird by the natives.

Xanthocephalus xanthocephalus. YELLOW-HEADED BLACKBIRD.—A few noted along the delta of the Birch River on the southwest shore of Lake Claire.

Agelaius p. phoeniceus. RED-WINGED BLACKBIRD.—Abundant breeder.

Euphagus carolinus. RUSTY BLACKBIRD.—Fairly common.

Quiscalus quiscula aeneus. BRONZED GRACKLE.—Common breeders in swamps near the Quatre Fourches River. Their nests are built in last year's cat-tails, like those of the Red-wing. One is astonished at the similarity in color and markings between the eggs of the Grackle and the Crow and the first thought entering my mind when finding the first of several nests was "pint-size Crow's eggs."

Carpodacus p. purpureus. PURPLE FINCH.—Fairly common in wooded areas along sloughs and rivers of the delta.

Loxia curvirostra minor. AMERICAN CROSSBILL.—Observed on two occasions, a flock of eight near camp on the Quatre Fourches, June 20, and six miles north of Fitzgerald on the Slave River, June 24.

Spinus pinus. PINE SISKIN.—A flock of about 25 individuals noted in an alder thicket on southwest shore of Lake Claire, June 15.

Plectrophenax n. nivalis. SNOW BUNTING.—This spectacular bird

was observed on two occasions. A flock of thirty or more came down into a meadow near our camp on the Quatre Fourches, June 20, like a cloud of confetti. On the Slave River, six miles north of Fitzgerald, another small flock was seen.

Poocetes gramineus confinis. WESTERN VESPER SPARROW.—Noted only around the settlements, especially McMurray, and Fitzgerald.

Passerculus sandwichensis alaudinus. WESTERN SAVANNAH SPARROW.—The most abundant Sparrow throughout the region. In the swamp meadows on the south-east shore of Lake Claire I found five nests in an area 100 yards square, and indications were that for over five square miles in the immediate vicinity, the birds must have averaged better than one nest to every hundred yard square block. On June 15, nests were found in every stage of development from those with a single egg, to some containing fledglings almost ready to fly.

Zonotrichia albicollis. WHITE-THROATED SPARROW.—Common around McMurray.

Spizella passerina arizonae. WESTERN CHIPPING SPARROW.—This bird is also most common around the settlements. Nests with eggs and young birds noted at Chipewyan June 22.

Spizella pallida. CLAY-COLORED SPARROW.—A small colony of these birds was located directly across the street from the row of buildings that constitute the main street of McMurray June 9.

Junco h. hyemalis. JUNCO.—Common on the rocky hillsides near Chipewyan.

Melospiza m. melodia. SONG SPARROW.—This ubiquitous species is found wherever there is open country.

Melospiza lincolni. LINCOLN'S SPARROW.—Fairly common.

Melospiza georgiana. SWAMP SPARROW.—To be seen scurrying among the weeds wherever one went. Common nester.

Passerella i. iliaca. FOX SPARROW.—In June, the song of this fine bird can be heard ringing all day long on the hillsides back of McMurray.

Passerina amoena. LAZULI BUNTING.—At Waterways, the end of the railroad, I took a walk through the heavy timber very shortly after getting off the train. A brilliant song, like that of the, to me more familiar Indigo Bunting, drew me on into a most disheartening plague of mosquitoes. It was a reward for the nuisance however to get a momentary flash of the brilliant plumage of a fine male of this species.

Progne s. subis. PURPLE MARTIN.—Ten or a dozen of these birds were seen at McMurray on June 7. Preble reports these to be rare in the region.

Petrochelidon l. lunifrons. CLIFF SWALLOW.—Several hundred nests were just being built under the eaves of the Hudson Bay Company's great warehouse at Waterways, on June 7 when we arrived, and the days following. Wherever the Devonian Limestone was showing along the banks of the Athabasca River, there would be seen a colony of these birds, busy with their family affairs.

Hirundo erythrogastra. BARN SWALLOW.—Noted especially around the settlements.

Iridoprocne bicolor. TREE SWALLOW.—Fairly common in the wooded parts of the region.

Riparia riparia. BANK SWALLOW.—Thousands seen along the banks of the Clearwater, and Athabasca Rivers.

Bombycilla cedrorum. CEDAR WAXWING.—Noted along the Birch and Quatre Fourches Rivers.

Vireosylva olivacea. RED-EYED VIREO.—Their lusty call is to be heard wherever brush and timber grow.

Vireosylva philadelphia. PHILADELPHIA VIREO.—On June 7 the following note was made regarding this species: Warbling Vireo common in woods back of McMurray, 20-30 of these seen one of which seemed referable to Phil. Vireo. Had no gun along to collect. The eye-line quite pronounced, and underparts unusually creamy. Definition of markings gave effect of especial trimness.

Vireosylva g. gilva. WARBLING VIREO.—Very common.

Lanius s. solitarius. BLUE-HEADED VIREO.—One collected on the Quatre Fourches, June 18. A habitue of the heavy timber, and as persistent a singer as the other members of his tribe, but certainly no quality to his song.

Mniotilta varia. BLACK AND WHITE WARBLER.—Observed near Chipewyan June 19.

Vermivora celata. ORANGE-CROWNED WARBLER.—Several observed along the banks of the Athabasca River June 9.

Vermivora perigrina. TENNESSEE WARBLER.—One noted in the heavy timber back of McMurray June 8.

Dendroica a. aestiva. YELLOW WARBLER.—Commonest of the Warblers. Nests with eggs, Lake Claire, June 15.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Several seen at entrance of Birch River into Lake Claire.

Seiurus aurocapillus. OVEN-BIRD.—Common throughout timbered areas.

Seiurus noveboracensis notabilis. GRINNELL'S WATER THRUSH.—Common along water courses. One collected near the entrance of the Birch River into Lake Claire, June 15.

Geothlypis trichas occidentalis. WESTERN YELLOW-THROAT.—Fairly common near McMurray, June 8.

Wilsonia p. pusilla. WILSON WARBLER.—Two nests with eggs found in the heavy willow growth near the mouth of the Birch River, June 15.

Setophaga ruticilla. REDSTART.—Very common.

Troglodytes aedon parkmani. WESTERN HOUSE WREN.—Breeds abundantly throughout the region. Two nests with eggs seen at McMurray June 7.

Telmatodytes p. palustris. LONG-BILLED MARSH WREN.—On several occasions, when tramping through wet meadows, some of these little fellows were flushed, and would scold us from a nearby reed.

Sitta canadensis. RED-BREASTED NUTHATCH.—A nesting pair seen at McMurray, June 8.

Penthestes atricapillus septentrionalis. LONG-TAILED CHICKADEE.—Very common.

Regulus c. calendula. RUBY-CROWNED KINGLET.—The strong clear song of this minimum bit of bird was indeed a pleasure to hear in the depths of the Black Spruce forest back of our camp on the Quatre Fourches River.

Hylocichla ustulata swainsoni. OLIVE-BACKED THRUSH.—The first nest I found in wandering through the woods back of McMurray was of this bird. An attempt was made to photograph this lovely bit of bird architecture, but the mosquitoes were so bad that I could not handle the camera. I was led to wonder how the naked young could withstand these terrific pests while the parent birds were away in search of food.

Planesticus m. migratorius. ROBIN.—The Robins in the country seemed especially plump and dark in color.

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NOTES ON SOME SUMMER BIRDS OF CHEFOO, CHINA.

BY TSEN-HWANG SHAW.

CHEFOO is located on the northern coast of the Shangtung Peninsula, 37° 32" north latitude and 121° 23" east longitude. During the past few years, Chefoo has been the favorite place for zoological collectors, being regarded as the Woods Hole of China. The marine fauna is not only rich in species, but also abundant in individuals. The birds, so far as I know, have not been fully listed.

In July, 1929, the present writer, accompanied by Messrs. C. J. Shen and S. K. Tang, visited Chefoo to collect zoological specimens for the Fan Memorial Institute of Biology, Peiping, and as a matter of personal interest, I took the opportunity to observe and collect the summer birds of the locality. The period of my stay was short, the specimens thus collected were only forty-seven in number. The skins, which were prepared by S. K. Tang, are now in the Zoological Museum of the Fan Memorial Institute of Biology. In addition to my notes on these birds, I have included comments on some interesting specimens obtained by Mr. K. F. Wang of the Biological Laboratory, Science Society, Nanking, during June and July, 1929.

The following list contains the birds I have personally examined or have seen at the field.

Phalacrocorax carbo sinensis (Shaw & Nodder). CHINESE CORMORANT.—A colony of about fifty birds is established at the northwestern end of Chefoo Shan. A typical habitat of this Cormorant is on a bluff where they pass the night and where the white excretions of the birds is scattered conspicuously here and there. The sea water under this cliff is very calm. We have seven birds taken on July 26, 1929, at that place. Their body weight varies from 2000 to 2300 grams. The flight of this bird is low and laborious. The Cormorant goes under the water for its prey, and may remain there for about a minute or so. Long, long ago, the birds were domesticated by Chinese, and utilized for catching fishes. Fishing by Cormorant is also seen in north China, but it is not so popular as that of central and south China. Several times I saw one or two birds perched on a rock and watching for fishes.

Phalacrocorax pelagicus pelagicus Pallas. PELAGIC CORMORANT.—The Pelagic Cormorant is not so common as the Chinese Cormorant.

On July 26, I noticed a few birds at the west side of Chefoo Shan, two or three together. Again, on July 31, while we were leaving for Yang-ma Tao by boat, I saw a single bird flying over the sea. Several specimens are in Wang's collection, taken near Chefoo Shan, July 24.

***Ardea cinerea jouyi* Clark.** EASTERN GRAY HERON.—On July 9, Mr. Wang saw two Gray Herons standing on a rock near Yang-ma Tao, at low tide. The one he shot was an adult female. On August 1, I noticed one on the sea shore at Moping, the mainland south of Yang-ma Tao. Mr. Wang told me that he has twelve specimens from the northwestern side of Chefoo Shan, collected July 28.

The bird is also found in marshy fields and on the banks of streams.

***Erythropus vespertinus amurensis* (Radde).** EASTERN RED-LEGGED FALCON.—The Eastern Red-legged Falcon is a common summer bird in the district. Four birds in Wang's collection, were collected June 29, July 1, and July 28. We have two birds collected on July 28, and one on July 30. They show a sexual difference in coloration. The male differs from the female by its unspotted breast, reddish bill, and a few minor characters. The body weight varies from 135 to 150 grams. They feed on lizards, and on locusts, beetles and other kinds of insects.

? *Butastur indicus* (Gmelin). GRAY-FACED BUZZARD-EAGLE.—On the morning of July 30, I saw a large Hawk, which was believed to be of this species, flying over the sea shore.

***Alectoris graeca pubescens* (Swinhoe).** EASTERN RED-LEGGED PARTRIDGE.—The vernacular name for this bird is 'Shih-chi' which means 'Stone Chicken.' On July 25, Mr. Wang noticed a flock of Red-legged Partridges at Chefoo Shan, their coloration is largely protective in the sandy hills. The bird Wang collected that day was a male. A countryman told me that the Partridges are now (end of July) relatively scarce as compared with last month. Mr. Wang purchased three males in the market on June 4. But there are no birds on the market for sale in latter part of July.

***Cirripidesmus mongolius mongolius* (Pallas).** MONGOLIAN PLOVER.—A female was shot in the morning of August 1, at the northern shore of Moping. The body weight of this bird is 85 grams. Several others were noticed on the sandy beach where they feed on small crustaceans. It was also observed on the sea shore at Chefoo.

***Anteliotringa tenuirostris* (Horsfield).** EASTERN KNOT.—Only few noticed on the sea shore at Moping, south of Yang-ma Tao, on August 1. A female was taken, weighing 170 grams.

***Tringa incana brevipes* (Vieillot).** GRAY SANDPIPER.—The Gray Sandpiper was not uncommon on the northern shore of Moping. On August 1, we shot five females within an hour. Their body weight varies from 93 to 100 grams. They feed on crabs and various other small crustaceans.

***Numenius cyanopus* (Vieillot).** EASTERN CURLEW.—On August 1, I saw several birds on the sea shore of Moping.

Sterna hirundo hirundo Linnaeus.—COMMON TERN.—The common Tern is one of the most familiar sea birds of Chefoo. One specimen in Wang's collection, taken July 14. On August 1, we collected nine birds from the northern shore of Moping. Their body weight varies from 49 to 53 grams. Their stomachs contained fish and crustaceans.

Larus crassirostris (Vieillot). BLACK-TAILED GULL.—This species is common along the sea shore and is often seen following the steamers. Mr. Wang shot one female on June 24.

Cuculus canorus telephonus (Heine). COMMON CUCKOO.—In the morning of July 27, I heard the calling of the Common Cuckoo.

? ***Asio otus otus*** (Linnaeus). LONG-EARED OWL.—Mr. Wang collected a young female on July 11. Owing to the bad condition of the skin, the specimen was not saved.

Micropus apus pekinensis (Swinhoe). NORTH-CHINA SWIFT.—This Swift is somewhat smaller than the White-rumped Swift. A single specimen in Wang's collection.

Micropus pacificus pacificus (Latham). LARGE WHITE-RUMPED SWIFT.—The large White-rumped Swift is a common bird along the sea shore of Chefoo. It is known that this bird breeds here in June. The nest is made of glutinous matter produced by the bird, and mixed with few feathers. The so-called "bird's nest" is highly valued on the table. Each nest contains two or three eggs. They fly in flocks, more or less Swallow-like. Six specimens collected on July 26, at Kung-tung Tao, an island about seven miles east of Chefoo Town. Their body weight varies from 38 to 45 grams. Wang has one bird taken June 20.

Dryobates cabanisi cabanisi (Malherbe). CHINESE PIED WOODPECKER.—A male in Wang's collection was taken on the southwestern hills.

Melanocorypha mongolica (Pallas). MONGOLIAN SANDLARK.—The Mongolian Sandlark is a common cage-bird in North China. People love to keep this bird in captivity. They hang their cages under the shade of trees and enjoy the singing of the birds.

Galerida cristata leautungensis Swinhoe. NORTH CHINA CRESTED LARK.—Several times, the Crested Lark was observed in the southwestern hills. Although it is a song bird, people care much more for the song of the Mongolian Sandlark. It was also noticed at Yang-ma Tao, on July 31.

Hirundo rustica gutturalis Scopoli. EASTERN HOUSE SWALLOW.—The House Swallow seems to be rather rare in Chefoo. I saw few birds in the town and vicinity.

Hirundo daurica nepalensis Hodgson. HODGSON'S STRIATED SWALLOW.—This Swallow feeds on beetles, grasshoppers, flies, mosquitoes and other insects. We have a bird taken in the southwestern hills, on July 28, and five more from Yang-ma Tao on July 31. Four of them weighed 17 grams each, one 20 grams, and the other 21 grams. It breeds in Chefoo. One mud-nest was observed in the Taoist Temple at Yang-ma Tao. It was fixed under the ceiling, and about fifteen feet above the

ground. The circular entrance facing towards the outside of the building. Next to the Tree Sparrow, the Striated Swallow is the most familiar bird in Chefoo.

Parus major artatus Thayer & Bangs. NORTH CHINA TIT.—The North China Tit is common in the wooded hills, where it feeds on leafhoppers and other small insects. One female was taken at Southwestern Hills on July 28. The weight of this bird was 15 grams.

Oriolus chinensis indicus Jerdon. BLACK-NAPE ORIOLE.—Wang's collection contains one specimen. It was collected on July 3, on the southwestern hills.

Pica pica sericea Gould. CHINESE MAGPIE.—I frequently heard this Magpie calling in the hills. It inhabits in the wooded region, and seems to be not very common.

Spodiopsar cineraceus, (Temminck). GRAY STARLING.—On July 28, Wang's party saw three Gray Starlings in the southwestern hills. He shot a female which weighed 65 grams. On August 1, a female was shot at the west side of Yang-ma Tao, its body weight being 74 grams.

Emberiza cioides castaneiceps Moore. CHINESE MEADOW-BUNTING.—The Meadow-Bunting is not uncommon on the pine-covered hills. We have two birds in our collection, one taken July 25 which weighed 21 grams, the other on July 28 weighing 20 grams. The birds feed largely on insects and seeds of grasses.

Passer montanus saturatus Stejneger. CHINESE TREE SPARROW.—The Tree Sparrows are very abundant in Chefoo. Seven specimens were collected by us. They feed on both animal and vegetable matter, and do great damage to the millet which is cultivated in the foothills.

THE MENACE OF OIL POLLUTION.¹

BY FREDERICK C. LINCOLN.

THE constantly increasing use by vessels of fuel oil with the resulting discharge by them of oil and oily mixtures brings such ships (including oil cargo carriers) prominently into the foreground as the most important direct cause of oil pollution near the coasts of maritime nations. A better understanding of the possibilities for harm may be had when it is realized that, while in 1914, 501 vessels using oil for propulsion totaled only 1,721,747 gross tons, by 1925 the total number had increased to 3,822 vessels of 19,372,615 tons. These figures include only vessels of five hundred gross tons or over.

Oil tankers returning with salt-water ballast in their tanks and bunkers have been accustomed, upon approaching the three-mile limit, to pump out this ballast, which by that time had become well mixed with the remaining oil in the tanks. Other oil-burning vessels follow similar practices, either in emptying fuel bunkers ballasted with sea-water, or in pumping overboard bilge water and other wastes containing oil or oily mixtures. In a report of the Shipping Board, dated December 18, 1925, it is concluded that "each year possibly as much as 5,500 tons of heavy oil are discharged in non-territorial waters near New York Bay, from ballast water alone, and that a study of winds, tides, and currents indicates that possibly 17% of this may be carried ashore."

It has been found that when birds alight on an oil-covered water surface, their feathers soon become so saturated with the oil that they are unable again to take flight. The fine down that insulates their bodies against cold and water becomes matted and water-soaked, the skin is exposed to the elements and the birds die from cold and hunger, or are mercifully drowned. Live birds in this oil and water-soaked condition have been rescued, washed clean

¹ This paper has been abridged and summarized from a chapter on Oil Pollution in the book "American Waterfowl, Their Present Situation and the Outlook for Their Future," by John C. Phillips and Frederick C. Lincoln, published (1930) by Houghton Mifflin Co., Boston, Mass. It is published for the purpose of bringing to the attention of ornithologists this menace to our aquatic birds.

with soap or some other solvent or emulsifying agent, dried out, and liberated without suffering any apparent ill effects, but unless human aid is rendered birds that alight in an oil-covered area are almost certainly doomed to death.

Reports of the destruction of Waterfowl through this agency are widespread, but for some unknown reason they have failed to arouse the ornithologists of America to action, possibly because of a belief that since Waterfowl are of chief interest to the sportsman their welfare should be guarded by him. The sportsman is becoming awakened to a sense of his duty in this matter, but ornithologists should be interested even more, not only for the sake of the game species, but for the Gulls, Auks, Murres, Loons, and other aquatic non-game birds.

Space is not available to present all of the cases of destruction of birds from this cause that have been reported, but a few cases will indicate what is happening along our coast lines.

A report from Boston in December, 1923, of conditions at Monomoy is tragic. " . . . the number of poor birds we found down there covered with oil is perfectly awful; Coot (Scoters), Brant, Old Squaws, everything. The amount of oil varied from a little on the breast to so much they could not fly but could only paddle about until they starved. Several had plucked themselves almost clean (bare) trying to get rid of the stuff."

A Massachusetts fish and game warden, reporting in March, 1930, says: "While I was at Nantucket on duty during January and February I counted hundreds of dead Coots (Scoters), Old Squaws, and Eider Ducks, killed by oil. In one day I counted 512 on Eel Point."

In 1919 an oil tanker unloading at East Providence, Rhode Island, broke the hose but continued pumping oil for some time before the break was discovered. The oil covered the upper bay and as a result State officers gathered up and buried 494 Bluebills that had floated ashore. A United States Deputy Game Warden reported in 1921 that in Narragansett Bay he gathered and buried more than nine hundred oil-killed Ducks.

On January 10, 1930, the steamer Edward Luckenback was wrecked on Block Island, Rhode Island, and the oil released killed literally thousands of birds from this island and the adjacent

shores of Long Island, to the mainland of Connecticut, and Rhode Island. Seventeen species were listed as killed, the result of this catastrophe.

The conditions have been particularly bad in Long Island Sound and one observer reports that he could pick up 25 oil-soaked birds any day during the season.

The waters of Chesapeake Bay, Pamlico Sound, and points in the coastal waters of South Carolina, Georgia, Florida, Louisiana, Texas and the Pacific Coast from Puget Sound south to San Diego, have frequently been the scene of great destruction of Waterfowl from oil.

Oil pollution, however, is not confined to coastal waters, and it may be safely stated that all agencies engaged in the production, transportation, handling, or use of oil, must be considered as actual or potential sources of pollution. In addition to the marine sources, consideration must be given to such land sources as wells and fields, oil terminals or loading points, refineries, railroads, and a host of industrial plants of different kinds, not excluding public service stations and garages. For example, a refining company in Illinois has been reported to be running a stream three feet wide and two feet deep into Grass Lake. This stream carries the refuse from the plant and has transformed a famous ducking lake into a veritable death trap that has claimed the lives of great numbers of birds.

The large earthen tanks or reservoirs sometimes used in the oil fields also may become the means of destruction of hundreds if not thousands of birds. Cases of this nature already are on record where Ducks, Killdeers, and even Mourning Doves have been the victims.

Many more instances might be cited which would still further emphasize the great loss of avian life through a man-made agency, at a period when necessity for the conservation of wild life is universally recognized. Furthermore oil pollution ruins bathing beaches, shore property, and fishing streams.

Ranking with our world-famous parks as an important adjunct to human welfare are our coasts and lake shores, river banks, and smaller streams. In fact, to base the comparison solely upon the percentage of the population that is benefited thereby, aquatic

resorts are unquestionably second to none. Literally millions of persons gather each year at watering places for bathing and other water sports, while the streams of the country are a part of the rightful heritage of the great fraternity of anglers and campers. Under no pretense can they be considered a legitimate dump for the waste from industrial plants and from cities.

What is the answer? Many States have passed stringent anti-pollution laws which if vigorously enforced would do much to relieve the deplorable conditions existing in vast areas of coast, river, and marsh. Some States, notably California, have shown a most commendable activity in enforcing these laws, but in others they exist merely on the statute books.

In 1922, Congress passed a resolution authorizing and requesting the President to call a conference of the maritime nations with a view to the adoption of effective means for the prevention of pollution of navigable waters. An exhaustive study of the problem was first made by an interdepartmental committee, containing representatives of the Treasury, War, Navy, Interior, Agriculture, and Commerce Departments, and the Shipping Board, which submitted its report to the Secretary of State in March, 1926. In the meantime Congress passed the "Oil Pollution Act, 1924," which makes it unlawful for any person to discharge oil by any means whatsoever into or upon the coastal navigable waters of the United States. The Secretary of War is charged with the enforcement of this law, which locally is administered by the district engineers.

At the conference on Oil Pollution of Navigable Waters, held in Washington, D. C., June 8-16, 1926, twelve foreign powers were represented. At that time the draft of a convention was adopted intended to prohibit the discharge of oil or oily mixtures in coastal waters. At this time of writing (1930) this convention has been tentatively agreed to by nine of the powers represented at the conference. It, therefore, seems that adequate international laws will be available to care for cases of maritime oil pollution, although the oil released from wrecks will always be a potential source of Waterfowl destruction.

The interior problem must receive attention from State and municipal governments and to this end the sportsman, the nature

student, and the professional biologist should work hand in hand for the common good. Collectively they have the power and the knowledge to protect, preserve, and wisely use the wild life resources of the Nation. The laws enacted should help to reduce the danger from oil pollution, but constant vigilance must be exercised so that still further improvements will be made and that there will be no recurrence of the heavily polluted waters that have already taken such heavy toll from the migratory Waterfowl of America.

*Biological Survey,
Washington, D. C.*

GENERAL NOTES.

Glaucous Gull (*Larus hyperboreus*) in Wisconsin.¹—On May 10, 1930, while walking along the Lake Michigan beach near Cedar Grove, Wis., a completely white Gull was observed in a flock of about fifty Ring-billed and Herring Gulls that rested on the sand. The bird was decidedly larger than the Herring Gulls and easily identifiable as a Glaucous Gull (*Larus hyperboreus*) in second year plumage, even by one not familiar with the species. At the time the writer was not prepared to collect the specimen.

A search was made on May 17 in the same neighborhood because commercial fishermen had reported seeing the bird in the vicinity during the week. After examining every Gull that came into vision, the Glaucous Gull was again located on the afternoon of the 18th and collected. It was only winged and was taken to the Milwaukee Public Museum alive, where Mr. O. J. Gromme made color notes and sketches of it.

The bird was quite vicious and had a much more powerful beak than the Herring Gull, to which several scars will attest!

It was a male. The viscera were badly infected and the specimen in poor flesh in spite of the fact that food was abundant in the vicinity where it was collected. The plumage was completely white with a few faint traces of buff on some of the neck and breast feathers.

This species is a rare visitor on Lake Michigan. Kumlein and Hollister mention a series of Glaucous Gulls collected in Milwaukee Harbor, January 8, 12, and 14, 1895 and Frank Woodruff reported one from Millers, Ind., August 8, 1897, but there is no published report for Lake Michigan since that date.

It is interesting to note that all the birds collected on Lake Michigan have been immature.—CLARENCE S. JUNG, 518 Stratford Ct., Milwaukee, Wis.

Play Instinct in Gulls¹.—The question frequently arises whether birds possess the faculty of play, wherefore the following observation for the affirmative is contributed:

The Anglo-Newfoundland Development Company has erected a dam a short distance above the natural falls on the Exploits River, at Grand Falls, Newfoundland. The Herring Gull was observed nesting here, on the rock islands formed in the river by the natural falls. Our attention was attracted to a number of individuals flying about over the dam and settling into the water a distance of twenty to fifty feet above it. They allowed the swiftly moving water to carry them just beyond the edge of the dam, when they would rise quickly, fly back and ride over the fall again. As many as five or six Gulls were observed doing this at the same

¹ Published with the Jonathan Dwight memorial fund.

time, some dropping out of the game and others taking their places. One individual repeated the action twenty-one times while under observation.—
PHOEBE KNAPPEN, *Biol. Survey, Washington, D. C.*

Sooty Shearwater at Daytona Beach, Florida.—On June 5, 1930, I picked up on the ocean beach a dead specimen of the Sooty Shearwater (*Puffinus griseus*). I believe that this constitutes the second record for Florida, based on specimens. There have been a few sight records in addition, according to Arthur H. Howell of the Biological Survey.—R. J. LONGSTREET, *Daytona Beach, Fla.*

Notes on Geese at Painesville, Ohio.—*Anser albifrons albifrons*. WHITE-FRONTED GOOSE.—On March 30, 1930, I came upon a bunch of Geese feeding in a wet meadow and found them upon closer examination to be White-fronted Geese, forty-two in number. The yellow legs and feet made identification easy. There were five male Mallards with them.

Branta bernicla hrota. BRANT.—On March 23, I found twenty Brant feeding in a wet part of the same meadow. They were much more active than the Canada Geese which we see here and less wild. I could plainly see the white spot on the side of the neck and white upper tail coverts which with the small size left no doubt as to their identity. They left without calling, flying north in two detachments. I first saw Brant here on March 9, 1924, when four alighted in one field and thirty-two in another. They gave several calls before alighting.

On March 26 I found five Canada Geese in the field where I saw the Brant this year. It had rained for two days and a great deal of water had collected. There were thirty or more Ducks there also but the weather was so bad that I could not identify them.—E. W. HADELER, *Painesville, Lake Co., Ohio.*

European Widgeon (*Mareca penelope*) on Wolf Lake, Chicago.—On April 15, 1930, Dr. C. H. Swift saw one of these birds at the above locality and on April 17, it was seen by both of us. Woodruff reports it as occurring occasionally in the Mississippi Valley, as does Forbush. This individual may have been an escape from the Wallace Evans game farm at St. Charles, Ill., about fifty miles from Wolf Lake. The bird was with a large flock of Baldpates, and nearby were a number of Redheads and other species for comparison. The red head on a duck otherwise like the Baldpates was quite conspicuous, and the light and distance were so favorable that the lighter central streak on the head could easily be discerned.

In many years birding around Chicago and other places, this is the first time I have recognized the European Widgeon.—ALFRED LEWY, 25 *E. Washington St., Chicago.*

Baldpates and Turnstones at Jackson, Mich.—The Baldpate or American Widgeon has been a rather uncommon migrant in southern

Michigan in past years, an occasional pair or two being seen. This year on March 30, I counted 200 on Portage Lake, and on April 6, 100 individuals, while some of the more common species did not come at all. The late Dr. W. B. Barrows speaks of this and the following as uncommon migrants inland, in his 'Michigan Bird Life.'

For the past four years I have seen from three to six Ruddy Turnstones at the same lake each year on May 30 and 31, a rather punctual itinerary.—
EDITH K. FREY, Jackson, Michigan.

Ducks in the Valley of Virginia.—The following are supplementary to my previous notes ('The Auk', July 1929, p. 379). The number of Ducks noted during the 1930 spring migration was again considerable for a mountain country that has few large streams and no lakes of any size, especially since some of the ponds were much diminished this year by a dry season. All dates are for 1930, unless otherwise noted, and all places are near Lexington, Va.

Mergus merganser americanus. AMERICAN MERGANSER.—A female brought to me on January 17. This was one of three shot on North River out of a flock of about a dozen, all said to be similar.

Lophodytes cucullatus. HOODED MERGANSER.—A pair in adult plumage at Cameron's Pond on April 2; and two flocks, totalling twelve, one on North River and one at Big Spring Pond, on April 14, all in immature plumage.

Anas platyrhynchos. MALLARD.—Occasional from October 3, 1929, through February; common in March and April.

Anas rubripes. BLACK DUCK.—Occasional from November 25, 1929, through March; common in April; a crippled bird on May 27. As far as the sub-species could be determined in the field, most of these were *A. r. tristis*, but I saw a few individuals at close range which I felt sure were *A. r. rubripes*. A cripple of the latter form was closely watched on April 4.

Chaulelasmus streperus. GADWALL.—Two males and a female noted at Big Spring Pond on numerous occasions from November 25 to December 30, 1929. First record here.

Mareca americana. BALDPATE.—Eight males and six females at Cameron's Pond on March 11. These were in very bright plumage, the heads of some of the males being strong cream buff.

Nettion carolinense. GREEN-WINGED TEAL.—One male and two females at Big Spring Pond on April 4 and 5. This is my only record here, while they are fairly common on the eastern side of the mountains.

Querquedula discors. BLUE-WINGED TEAL.—Abundant, April 3 to 14.

Spatula clypeata. SHOVELLER.—Two pairs at Cameron's Pond on April 3, and one male, April 4 to 9.

Dafila acuta tzitzihoo. PINTAIL.—A pair at Cameron's Pond on March 11.

Aix sponsa. WOOD DUCK.—A pair in bright plumage at Cameron's Pond on April 4, and another pair on April 14.

Nyroca affinis. LESSER SCAUP. Abundant, March 28 to April 22.

Nyroca collaris. RING-NECKED DUCK.—A female brought to me on November 25, 1929, which was killed on North River; two females on April 2; six females on April 4; a pair on April 5 at Cameron's Pond.

Glaucionetta clangula americana. AMERICAN GOLDEN-EYE.—A male on North River on April 3.—J. J. MURRAY, Lexington, Va.

Diving Habits in the Genus *Nyroca*.—In a paper on "The Use of The Wings and Feet in Diving Birds,"¹ I stated that Redheads, Greater and Lesser Scaups, and Ring-necked Ducks, all of the genus *Nyroca*, use only the feet in under-water propulsion, but I was able to give very few observations on these birds. This statement I am now able to confirm by observations on two European birds of the same genus, the Tufted Duck (*Nyroca fuligula*) and the Pochard (*Nyroca ferina*). The diving of the former I witnessed many times in the pond of St. James Park, London, in July, 1927, and of both species in June, 1930, under most favorable circumstances. Standing on the bridge, which is only two or three feet above the surface of the water, here perhaps four feet deep, one looks down on the Ducks which often dive directly below or only a few feet away. The water is clear enough to show distinctly all their under-water movements. Notwithstanding their tameness, these are "wild" birds with unclipped wings, and they resort here in the heart of London together with Gulls, Moorhens and other birds.

The Tufted Ducks, which look like Lesser Scaups, were in both years continually diving for small fish which they pursued with great speed by feet propulsion alone, and they darted about making quick turns from side to side and up and down. The fish were brought to the surface, and, after some efforts, swallowed. On two occasions while I was watching, the fish dropped from the bill, and the Duck instantly dove in pursuit. At no time, even at turns, were the wings used or even raised from the sides. In fact the feathers of the flanks, pure white in the adult males, rolled over and covered the wings, and it could be seen that these feathers were not displaced at any time.

The feet were used together, but not always. In turns they were often used alternately, and they were often extended from the body at an angle. The Duck generally began the dive by leaping from the water with wings close to the side, and it executed a graceful curve as it plunged below the surface.

The Pochard, which looks like our Redhead, dives and pursues its prey under water in the same manner. This method of diving is very different from that of Ducks of the genera *Clangula* and *Somateria*, for example, where the wings are used.—CHARLES W. TOWNSEND, Ipswich, Mass.

Spoonbills at Marco, Fla.—I may have misunderstood him, but in the

¹ The Auk, XXVI, 1909, pp. 234-248.

July 'Auk' Mr. Amos W. Butler, Indianapolis, Indiana, seems to imply that the Roseate Spoonbill is now quite rare in Florida. When I was in Florida the first week of June this year, I found large numbers of them among the "Thousand Islands," around Marco (I believe it is now renamed Collier City), on the west coast, below Fort Myers, and friends who go down there for tarpon, as I did, once or twice every June tell me they always find them there in abundance. I did not make any mistake in identification, as I was repeatedly near enough to see every mark of identification quite plainly.—THOS. E. WINECOFF, *In Charge of Research, Pennsylvania Game Commission.*

Roseate Spoonbill (*Ajaia ajaja*) taken in Southern Alabama.—

On June 9, 1930, I visited Dauphin Island, Alabama, at the mouth of Mobile Bay, for the purpose of banding Little Blue Herons. In the small fishing village on the island, I was shown, as a curiosity, a stuffed bird which the owner called a "curlew." This bird proved to be a mature Roseate Spoonbill with the typical bare head and throat, and the ochraceous-buff and carmine markings of the adult.

The Roseate Spoonbill was taken by Mr. Oliver Ladnier of Dauphin Island on June 1, 1930, in the Little Blue Heron Swamp known locally as "Alligator Pool" and situated on the east end of the island. I purchased the specimen from Mr. Ladnier and sent it to a taxidermist for better mounting. The bird is now in my possession. The last occurrence of the Roseate Spoonbill in Alabama is recorded by A. H. Howell in his 'Birds of Alabama' as follows—"two birds of this species (*Ajaia ajaja*) killed on Dauphin Island (Alabama) about the year 1897."—HELEN M. EDWARDS (MRS. W. H.), *Fairhope, Ala.*

Yellow-crowned Night Heron in Lancaster County, Pennsylvania.

—On May 4, 1930, in the upper valley of the Hammer Creek I had a close view of *Nyctanassa violacea*. The bird, a mature individual, assisted the observation by standing quietly on a log within forty yards allowing me to study its yellow tinted white-crown and plumes. This is the first record of the species in this region.—HERBERT H. BECK, *Lititz, Pa.*

Little Blue Heron Breeding in Delaware.—On June 6, 1930 in company with another member of the West Chester, Penna., Bird Club, we were conducted to the site of a colony of breeding Little Blue and Black-crowned Night Herons in lower Delaware. Some months previous I had been informed that this colony had been discovered during the breeding season of 1929 and that I might visit it during the coming season. We arrived about 2 P. M. after a walk of perhaps three-fourths of a mile from the highway. The site was in second-growth pine and deciduous trees, the former predominating and all set very thickly on the ground, averaging perhaps forty feet in height with the tops closely interlacing. The nesting trees covered an irregular area of perhaps 75 to 100 feet square and so dense was the foliage above, that it was generally impossible

to determine with accuracy the exact number of nests in a tree, nor could we be at all sure if the number of birds constituting this combination colony as the estimates ranged from over 200 pairs to less than 150; to be conservative we felt sure there were 50 pairs of the Night Herons and 100 pairs of Little Blues, while six or seven nests in a tree was the maximum count.

The two species were somewhat segregated but the Night Herons seemed to have invaded the territory selected by the Little Blues though there was no line of separation. The ground and foliage above were well whitened throughout; but it was noted that very few discarded egg shells of the Little Blue Herons were to be found under the trees where the main body of the Night Herons were nesting while shells of the Night Herons' eggs were elsewhere rather numerous mingled with those of the other species.

Some nests may have held eggs at this time although none could be seen through the frail structures but our guide informed us that a week earlier he had seen eggs as he viewed the nests from the ground.

Many young birds were out in the tree-tops, some still in the nests and several hanging dead, suspended on twigs or in crotches where they had fallen. The return of *Florida caerulea* as a breeding bird in Delaware is a noteworthy event.—C. J. PENNOCK, Kennett Square, Pa.

The Little Blue Heron (*Florida caerulea caerulea*) in the North Carolina Mountains.—Definite records of the occurrence of the Little Blue Heron in the highest parts of the North Carolina mountains are apparently scarce. It seems worth while, therefore, to record the fact that we observed a single individual in the white plumage on July 30, 1930, at Blowing Rock, N. C., at an altitude of about 4000 feet. We observed the bird at close enough range to see the greenish yellow legs and to note that the white was not smoked with slate except at the tips of the primaries. After that date the bird was reported to us as staying for about a week in the neighborhood where we saw it, feeding back and forth between Cone's Lake and Chetola Lake. There are few, if any, bodies of water in the State as high as these two little lakes, and no higher point at which this Heron might reasonably be expected to occur.—ALEXANDER SPRUNT, JR., Charleston, S. C. and JAMES J. MURRAY, Lexington, Va.

Little Blue Herons in Barry County, Michigan.—Mr. Corsan of the Kellogg Bird Sanctuary reported the presence of six white herons at Mud Lake near Delton, in Barry County, Michigan, and on August 24, 1930, Richard E. Olsen, H. A. Olsen and I visited this lake. To our surprise there were eighteen of the white birds which proved to be Little Blue Herons (*Florida caerulea*), accompanied by several Great Blue Herons and three immature Black-crowned Night Herons, another uncommon Michigan Heron. We could approach to within thirty feet of the birds before

they would fly, thus with the aid of 10× binoculars we noted the greenish colored legs and the bluish tips to the primaries when they flew. One individual showed much more blue here than any of the others but it was visible on all to some extent.

The lake is surrounded with a shallow marsh and this was the place where the Herons were feeding with as many as twelve boat loads of people fishing only a short distance away. When they were frightened they would fly down the lake to another marshy place only to return in a few minutes.

The Olsen brothers had previously located several of this species in Jackson County and knew the bird well.—LAWRENCE H. WALKINSHAW, *Battle Creek Michigan*.

American Egret at Bellevue, Michigan.—On August 24, 1930, Mrs. E. Peterson, H. A. Olsen and I found a fine specimen of the American Egret (*Casmerodius egretta*), two miles south of Bellevue, Michigan. It was feeding about a large muddy lake just over the county line in Calhoun County. The bird was nearly as tall as a Great Blue Heron, was pure white in color, had a yellow bill and black legs and feet. At one time it was within fifty yards of us.—LAWRENCE H. WALKINSHAW, *Battle Creek, Michigan*.

Snowy Egret at Cape May, N. J.—On August 30, 1930, I located a flock of American Egrets and Little Blue Herons on a pond near the lighthouse, at Cape May Point, N. J., a favorite resort of these birds all through the summer. Desiring to obtain a closer view of them I worked my way through the dense growth of cat-tails which surrounded the pond and emerged on the edge of the open water. There were two of the large Egrets and twenty of the Little Blues while in front of me not over twenty feet away stood a Snowy Egret (*Egretta thula thula*) probably an immature bird, at any rate without plumes. It stood on a mud lump with its bright yellow toes spread out conspicuously and in strong contrast to the black tarsi. When the bird turned sideways or walked away the back of the tarsi were seen to be yellow a fact that I have noticed in these birds in the South but which does not seem to be sufficiently emphasized in our books. While the bill is black and more slender than in the Little Blue Heron, the bird slightly more slender and the neck more prone to be curved, the differences are not so readily made out when the birds are at a greater distance with the feet covered by the water. The bill of the Little Blue frequently looks black when in shadow and also the tarsi, while the tarsi of the Snowy Egret often look yellow or greenish when seen from the side or rear, or in flight.

Careful study of the white Heron flocks at Cape May for over ten years with the Snowy Egret always in mind has failed to reveal its presence until now and I am inclined to think that it did not occur. There was a single bird recorded from a few miles farther up the coast a few years ago and

several records for the middle or northern States during the past season are pleasing evidence of the return and increase of this beautiful species.—WITMER STONE, *Acad. Nat. Sciences, Philadelphia*.

The Snowy Egret (*Egretta thula thula*) near Washington, D. C.—Two individuals of the Snowy Egret were seen by the writer at Four Mile Run, Virginia, August 23–25, 1930, and in addition two others were seen at Alexander Island, Virginia, August 24, 1930. One immature specimen was collected August 25 at Four Mile Run and was placed in the U. S. National Museum. It might be mentioned that the anterior portion of the tarsus was black and the posterior pale greenish-yellow, this being clearly discernible in the field. The toes were yellow, which is characteristic of this species. Previously, this species had been known in the Washington region from a single specimen, taken about 1841.—WILLIAM HOWARD BALL, 1861 *Ingleside Terrace, N. W., Washington, D. C.*

Snowy Egret and Other Birds near Media, Pa.—It may be of interest to report that on August 16 at Springfield Reservoir, near Media, Delaware Co., Pa., the writer observed a Snowy Egret. The very clear morning sunshine made it possible to distinguish nearly every detail, especially of color.

It was studied at a range of twenty-five to thirty feet as it stood on a gravel bar. I later observed it in flight and while feeding. Attention was at once attracted by the contrast between its yellow feet and blue-black tarsi, making it easily distinguishable, even at a distance, from the young of the Little Blue Herons with which it was associating. I also noted the yellow area at the base of its blue-black bill, the surface of which appeared to have more luster than that of the Little Blues.

I could not be sure of any contrast in size as compared with Little Blues, but its actions were more sprightly and alert. It stood more erect with gracefully curving neck, seldom straightening it out as the Little Blues so often do.

It was again observed on August 23 by Mr. John Gillespie and the writer and again on August 27 by Mr. Gillespie and Mr. Julian K. Potter.

On account of the drought the reservoir has apparently attracted an unusual number of Herons and Sandpipers. Although the larger Egrets were the first to arrive on July 7, they disappeared before the end of the month, while the Little Blues increased in number during August, sixty being the highest number observed on one trip.

The Least Sandpipers appeared July 6 but soon left. Pectoral Sandpipers and Greater and Lesser Yellow-legs appeared July 17, while on July 31 Mr. John Gillespie and the writer observed Stilt, Pectoral, Spotted and Solitary Sandpipers, also about six hundred Semi-palmated Sandpipers together with a number of Greater and Lesser Yellow-legs.

On August 5 Mr. Gillespie and the writer noted two White-rumped Sandpipers, while on August 16, the writer noted one Red-backed Sand-

pipe and five Western Sandpipers, the latter observed at close range while associating with Semi-palmated Sandpipers.—V. A. DEBES, 1209 Folsom Ave., Moore, Pa.

Egrets, and Little Blue Herons in Wisconsin.—To my knowledge there have been no authentic Wisconsin records of the Little Blue Heron since 1848. At that time Dr. P. R. Hoy collected one in Racine County and Thure Kumlein preserved the decomposed wing of another. The Egret (*Casmerodius egretta*) is reported as having been more or less common in the southern half of the state many years ago, but the last one observed was recorded by Professor Warner Taylor at Madison about 1925.

With the above facts in mind it was indeed interesting to learn on July 29 that four white birds of the Heron kind were observed at the Hustisford millpond. Investigation revealed them to be Little Blue Herons in the white plumage. I immediately published this fact in a state-wide newspaper, hoping that local sentiment thus created would react in the birds' favor. The result was that I had reports of the birds from many different localities, but so far none farther west of Milwaukee than Burlington, nor north of Pensaukee. Wherever possible I personally ran down all reports other than those from authentic sources.

At Burlington our informer took us to a roadside "pot hole," where we found two Egrets and four Little Blue Herons quietly feeding in company with Great Blue Herons, Green Herons, and American Bitterns. Suddenly all took wing but one Little Blue Heron whose attempt at a "take-off" ended in an awkward sprawl on the water. We released it from the vice-like grip of a small snapping turtle which had caught it by the foot. The bird was none the worse for its ordeal and was banded and liberated.

On the Fox river just south of Waukesha, Paul Jones took us to six Little Blue Herons and four Egrets. One Little Blue Heron was observed on Moose Lake, two on Lake Poygan, two at Pensaukee, three at Lake Winnebago, one at Big Muskego, and one was observed near the shore of Lake Michigan by Mr. Clarence Jung. Two of the Little Blue Herons that I collected proved to be males and two Egrets were females. It seems logical that this sudden influx or wandering northward, can either be attributed to a natural overflow from breeding grounds or to the devastating drought in southern states which has dried up many of the feeding areas. I find that most of the birds appeared about the middle of July. All of the Little Blue Herons observed were in the white plumage and none was in the intermediate stage. An unusual number of Wood Ducks have made their appearance in the Milwaukee area. In localities where they were formerly rare or at least quite uncommon they can now be numbered by dozens and in some cases hundreds. Mr. Jung and I first noticed this increase about the middle of May.—O. J. GROMME, Milwaukee Public Museum, Milwaukee, Wis.

The Sarus Crane of Falmouth, Mass.—The Sarus Crane on the Whittemore estate at Quissett, Falmouth, Mass., which was the remaining

bird of a pair and which had remained on the estate for fifteen years or more and has several times been mentioned in the columns of 'The Auk,' proved this year to be a female, built a nest on a small island in Quisset harbor and laid two eggs. One of these was broken but the other I rescued and sent to the Museum of Comparative Zoology.

Since our native Cranes are becoming so scarce would it not be a good plan to interest someone in liberating some of these interesting birds in Florida or elsewhere in the United States where they would be afforded some protection and see if they would not become acclimated, and increase?

—LOMBARD CARTER JONES, Falmouth, Mass.

Proper Name of the Virginia Rail.—Not long after the appearance of the 1910 edition of the A. O. U. Check-List Mr. Roy Q. Curtis called attention of the Committee to the fact that the name *Rallus virginianus* long applied to the Virginia Rail was in reality based on the Sora (*Porzana carolina*). For some reason no action on the matter was ever taken although Mr. Curtis' contention is undoubtedly correct.

Linnaeus based his name on the descriptions of Catesby and Brisson and as the latter in turn quoted Catesby as his authority this author becomes the sole source of the name.

Catesby's description and plate clearly refer to the Sora so that the name *Rallus virginianus* Linn., 1766 becomes a synonym of the earlier *Rallus carolinus* Linn., 1758, and the Virginia Rail is left without a name. Dr. C. W. Richmond however informs me that there is an available name in *Rallus limicola* Vieillot. (Nouv. Dict. Hist. Nat., Vol. 18, 1819, p. 558) and hereafter the bird must be known by that name. It is inconceivable how our earlier ornithologists ever identified Catesby's figure, with its short conical bill, as the Virginia Rail.—WITMER STONE, Acad. Nat. Sci., Philadelphia.

A Rail Conundrum.—Early on the morning of April 27, 1930, I was "railing" over the broad expanse of fresh water marsh along the Whippany River, not far from Boonton, N. J., known as Troy Meadows. Upon a dry path I stood listening to a chorus of bird notes—the rolling whinney and frog-like *ker-wee* of the Soras; the sequenced grunts and paired *kaks* of the Virginia Rail a-wooing, and a mixture of whines and wails establishing the presence of a number of Florida Gallinules.

Suddenly, close to me—barely fifteen feet away—came a note which I had never heard. It was repeated several times. I wrote it *kik, kik, kik, kik, kik-keé er*, with the last notes slightly rasping but full and of a decidedly musical quality. It was, in fact, a song. As I looked toward the focus of these new sound waves a small bird crossed and re-crossed, quickly but in plain sight, over five feet of open marsh between tussocks. It was very close, and very black—much darker than the Virginia Rail still standing in the open, and I saw below the cocked tail on a dark-feathered background, narrow white bars. Light conditions could not have been better and I had no mental hesitation in calling the bird a Black Rail.

I had never heard these notes from the Black Rail inhabiting the BarNEGAT region where I am fairly familiar with the species—but since the notes came from the spot where I had seen the bird I assumed that it was the Black Rail calling, and I got some added confidence after reading William Brewster's comment on the notes of a supposed Black Rail heard in the Cambridge, Mass., region ('Auk,' Vol. XVIII, 1901, p. 321-328). However, upon consulting Forbush's 'Birds of Massachusetts,' I found that Mr. Brewster's Rail notes, identical with those I had heard, were in turn identical with the notes uttered by a Yellow-Rail kept alive by Mr. J. H. Ames. Mr. Ames described the call as a series of *kiks* ending in a *ki-queah*.

I have seen the Yellow Rail once in life, and it gave an obvious impression of light coloration. What I saw at Troy Meadows my eye says was a Black Rail. What I heard from the same spot Mr. Ames says were the notes of a Yellow-Rail. Which was it or both?—CHARLES A. URNER, Elizabeth, N. J.

Coot Breeding in Florida.—On June 29, 1930, a Coot (*Fulica americana*) was caught alive by Mr. Clyde Love, on Lake Griffin, Lake County, Florida, and put in a sack. The next morning, on removing the bird from the sack, a freshly laid egg was found. This egg was sent to the Florida State Museum, and is catalogue number 48219.—O. C. VAN HYNING, Florida State Museum, Gainesville, Fla.

Killdeer in Connecticut.—In the July 1930 issue of 'The Auk,' I note that Mr. Louis H. Porter of Stamford, Conn., comments on the apparent increase in Killdeers in this section of Connecticut. He reports finding a nest with young, or, perhaps, adults with young which had recently left the nest, and cites this as evidence that this species now may be definitely known to be breeding in our state.

I wish to report also that Killdeers are by no means uncommon here, and that Mr. Frank Benedict, of Belden Hill, Wilton, Conn., who is a keen observer of native bird life, has found Killdeers breeding near his residence, the last time being this spring. There can be little question but what Killdeers are becoming established here as regular summer residents.—DEVERE ALLEN, Little Forest, Wilton, Conn.

Willet (*Catoptrophorus semipalmatus semipalmatus*) Breeding in Southern New Jersey.—In the spring of 1929 David Leas of the Delaware Valley Ornithological Club reported that he had seen several Willets in southern Cumberland County, N. J., and on June 4, 1930, John T. Emlen Jr., reported that he had seen four there while on June 29, 1930, the writers had the good fortune to find them actually breeding in this region. An old bird with three downy young was found in a salt marsh after a rather prolonged search and curiously enough one of the young showed albinistic tendencies, the down being creamy white with here and there a grayish wash; the eyes and soft parts normal while the bill and legs

were slaty blue like those of the adult. The two brown, normal young could not be found in the short grass even though seen with the adult from a distance. At least two other pairs of Willets were found on this occasion and on July 16 Messrs. Marburger and Potter found two young Willets just able to fly with the down still noticeable about the head, and the tails rather short. They took wing at the frantic urge of their parents and flew about fifty yards, making no attempt to conceal themselves by "freezing" as when in the downy stage.

A native of Beaver Dam, N. J., informed us that he had noticed Willets during the breeding season about five years ago and they had become fairly common during the past two years. The last actual breeding record of the Willet for New Jersey was 1884 (Stone's 'Birds of Eastern Pennsylvania and New Jersey' page 77—footnote).

The return of the Willet as a breeding bird to this region is a concrete example of the beneficial effects of the Migratory Bird Law.—EDWARD S. WEYL, 6506 Lincoln Drive, Philadelphia; JULIAN K. POTTER, Collingswood, N. J.

Nesting of the Upland Plover near Lexington, Va.—In view of the present scarcity of the Upland Plover (*Bartamia longicauda*), a nesting record is worthy of note, especially at a place so near the southern limit of its breeding range as Lexington, Va. I saw a nest of this species on June 3, 1930, in an alfalfa field two miles north of this place. A pair of these birds spent the summer of 1929 in a neighboring field and gave evidence of nesting but I was not able to locate the nest. The nest referred to above was uncovered by Mr. Alphin, the owner of the farm, while he was raking hay. There were four young at the nest, the eggs evidently having been hatched that morning. The shells in large pieces were still in the nest depression. The wheel of the hay-rake crushed one of the young birds, the skin of which I later saved. Knowing of my former efforts to find a nest, Mr. Alphin telephoned me at once and I reached the spot before the young had left the immediate vicinity of the nest. They were able to run about well in the stubble. Only one of the parent birds was in evidence. To my surprise, this bird did not feign injury, but did rush toward us with outcries when we came near the nest. When we moved off, it ran before us as if trying to toll us farther away. The little birds, when held in the hand, uttered a faint, mournful whistle, with such a peculiar ventriloqual quality that I was sure at first that it was the note of another adult bird on the wing at a great distance.—J. J. MURRAY, Lexington, Va.

Western Sandpiper in Massachusetts in Spring.—While the Western Sandpiper (*Ereunetes mauri* Cabanis) is not an uncommon spring migrant and occasional winter resident on the South Atlantic coast from North Carolina southward, there appear to be no records for its occurrence (other than occasional sight records) in spring for the North Atlantic States, except that of a specimen taken by Mr. I. N. DeHaven at Atlantic City,

N. J., May 17, 1892 (Stone Birds of New Jersey etc. in, Ann. Report N. J. State Mus. 1908, p. 132). It is therefore a source of satisfaction to be able to add another record; that of a female which I collected at the mouth of the North River, Marshfield, Mass. while in company with Mr. Joseph A. Hagar, on 27 May, 1930. The skin is now in the Museum of Comparative Zoology.

The bird was with an enormous flock of small Sandpipers, an overwhelming number of which were *Ereunetes pusillus* (Linn.). It seems only fair to state that neither of us picked out the bird in life; its capture was due entirely to one of those curious twists of fortune. I was looking especially for White-rumped Sandpipers, and seeing one a little apart from the main flock, shot it. While I was picking it up Mr. Hagar retrieved two wing broken "peeps" one of which was a Semipalmated, the other a Western Sandpiper.—JAMES L. PETERS, *Museum of Comparative Zoology, Cambridge, Mass.*

Buteo platypterus in Porto Rico.—It was recently my privilege to accompany Mr. H. J. Coolidge, Jr. on a brief visit to Porto Rico. On March 12, 1930, we were the guests of Col. George W. Lewis, Chief of the Insular Police, on an ascent of El Yunque, the principal mountain mass lying in the northeast part of the island.

A short distance below the summit I heard the familiar squeal of a Broad-winged Hawk and a few moments later two birds, presumably a pair, were seen a short distance ahead. One of the birds swooped down over the party within easy gun shot, and so close that the characteristic field marks were plainly distinguishable. Perhaps it was just as well that I had no gun with me, for the bird presented a most tempting target, but would almost certainly have been lost in the tangles on the steep mountain slope below the trail.

The Broad-winged Hawk has not been seen in Porto Rico for thirty years. Wetmore (Birds of Porto Rico and the Virgin Islands 1927, p. 323) mentions an individual seen by Dr. C. W. Richmond near Utuado, April 6, 1900, but the bird has not been encountered by any ornithologist since that time.

In the absence of specimens from Porto Rico it is not possible to state definitely to which subspecies the bird should be referred, though it is extremely doubtful whether it belongs to *B. p. insulicola* Riley, of Antigua and Barbuda, the nearest race in point of distance. It is far more probable that it is the same as the bird resident in Cuba which was described by Mr. F. L. Burns as *Buteo platypterus cubanensis*, a form usually regarded as indistinguishable from the typical race of North America, but which seems to merit recognition on the basis of slightly smaller size.—JAMES L. PETERS, *Museum of Comparative Zoology, Cambridge, Mass.*

Mass Occurrence of the Duck Hawk (*Falco peregrinus anatum*) in the Mountains of North Carolina.—On August 1, 1930, the writers had the unusual privilege of seeing seven Duck Hawks in the air at one

time over Grandfather Mountain, N. C. The section of the mountain where this occurred lies in Avery Co. We had been on "The Nose," one of the higher peaks of the mountain, and an hour or so earlier had seen one adult Duck Hawk fly past at high speed and disappear toward the Tennessee line. As we started down the trail over "The Nose" and rounded a small shoulder of the peak a high-pitched scream greeted us, and, looking up, we got a beautiful view of an adult Duck Hawk at a range of not over two hundred yards. The bird was in such good light that we could easily get the black "moustache" markings and distinguish the various other color markings of a mature bird, even the pinkish suffusion on the breast showing distinctly. But we could not spare many minutes for this bird, for just behind it was another, and then another, and still another, and then three more following these at a short distance, making seven Duck Hawks in plain view at once. It was not a strung out flight; all seven were more or less together, and once four of them were in the field of the glasses at the same time. There were both adult and immature birds in the group. They passed in a generally southerly direction parallel with the line of the mountain, most of the time high in the air but at times coming quite low and close to the peak on which we stood. After a scream or two from the first bird, none of them made any further sound. Even our wonder at the sight of so many individuals of this rather rare Hawk was forgotten at the remarkable aerial maneuvers which some of them then performed. Every now and then two of the birds separated from the general group to indulge in acrobatics. One circled higher and higher until almost out of sight and then, with wings half closed and set, dropped for half a mile with terrific speed at the other bird, banking with a lightning-like turn just in time to avoid a collision, and pulling the other bird over and over with the rush of air. Again and again this happened, several couples performing this feat, until finally the whole group passed out of sight, leaving us almost breathless at the sight that we had witnessed. Mr. Forbush, in his 'Birds of Massachusetts,' calls attention to the fact that often a family of Duck Hawks will linger together about an aery long after the young are grown. It seemed to us rather likely that these seven birds belonged to two such family groups. He also says, "When the fledglings have become skilful in flight, both young and adults in practice or in play often strike at birds which apparently they have no intention of capturing." The performance that we witnessed seems to have been a variation of this habit in that the Duck Hawks were striking at one another in play rather than at other birds.—ALEXANDER SPRUNT, JR., *Charleston, S. C.*, JAMES J. MURRAY, *Lexington, Va.*

Urban Burrowing Owls.—When I first came to San Diego from New York State in 1921, a surprising discovery, among many interesting new bird experiences, was the occurrence of Burrowing Owls (*Speotyto cunicularia hypogaea*) in well-settled parts of the city. A certain individual roosted daily in a pepper tree in front of the Central Y. M. C. A., almost

in the heart of the business district. On El Cajon Boulevard, which was a well-traveled thoroughfare even in those days, Burrowing Owls could often be seen perched on the side-walk curb. They lived in the culvert drains under the intersecting streets.

The paving of this boulevard has driven these birds away, and the Y. M. C. A. "Billy" has gone, yet in spite of San Diego's present 150,000 population Burrowing Owls still subsist wherever there is any extent of vacant land. In quiet streets they can sometimes be seen hawking about the arc-lights at night and settling on the pavement below—probably in pursuit of moths. On Reynard Way, which is a short-cut between downtown and the Mission Hills residential district, these Owls are common, because many of the sloping lots on each side have not yet been built upon. Even in broad daylight a "Ground Owl" may often be seen standing upon some advertising sign, apparently unconcerned at the passing stream of automobiles. On the other hand, I have more than once seen the flattened body of one of these Owls on the cement roadway (perhaps the remains of an inexperienced youngster)—evidence of bewilderment and tragedy.

On May 20, 1930, I happened to be driving up Reynard Way and passed directly under a Burrowing Owl which was perched on a wire stretched across the street. It was the hour in the afternoon when business men were returning to their homes, and the little Owl seemed to be bending forward and surveying the stream of cars with the calm and judicial air which is supposed to be typical of the Owl family. I was somewhat surprised to see one of these birds on a wire, especially in that rather lofty situation. I also noticed that it was squatting on the wire with the feet covered, instead of in the erect attitude one usually associates with the Burrowing Owl.

Whereas such observations seem common-place and trivial, it may not be amiss to place them on record. At the speed with which some western cities are growing, present-day remnants of primitive conditions are bound to disappear completely before long.—CLINTON G. ABBOTT, *San Diego Society of Natural History, San Diego, California.*

Great Horned Owl (*Bubo v. virginianus*) Breeding in the District of Columbia.—It is with great pleasure that I record the taking of a fresh set of two eggs of the Great Horned Owl by my friend Edward J. Court at Washington, D. C., March 5, 1930. The nest was situated fifty feet from the ground in a dead chestnut tree, in a section of mixed oak and pine trees, west of Rock Creek, near the Military Road. The eggs were laid on rotten wood and a few feathers from the incubating bird. Both adults were present, one being flushed from the nest. This species has long been known as a permanent resident, but this is believed to be the first breeding record for the District of Columbia.—WILLIAM HOWARD BALL, 1861 *IngleSide Terrace, N. W., Washington, D. C.*

Breeding of Brewer's Blackbird East of its Normal Summer Range.

—Kumlien and Hollister say that the only known nesting of this species in Wisconsin was on June 14, 1862, at Lake Koshkonong.

A mature male was taken in July 1883 in Green Lake Co., Wis., by F. H. King (Nat. Hist. of Wis.).

Mr. A. J. Franzen furnishes records from Walworth Co., Wis., as follows: May 29, 1926, a male collected by E. G. Wright; June 3, 1928, a nest containing four eggs collected by himself; (he observed only one pair that year) May 19, 1929, two females collected by himself; May 30, 1929, three young about a week old. This year (1930) six pairs have been seen by Mr. Franzen in this locality.

Mr. W. I. Lyon of Waukegan, Ill., writes as follows: "On June 17, 1929 a nest was found by a nurseryman who pointed it out to C. E. Holcombe of Zion, Ill. Holcombe stated that there were two eggs and three hatched young. He watched the nest and on June 26 called me to assist in identification. On arriving at Winthrop Harbor about half way from the railroad to the station on the main road to the beach, and about three hundred feet south of the road, we found that there were four adult birds; so we waited until we found the females feeding and in this way located a second nest. The original nest contained three fully grown young and one dead bird. The second nest had four slightly smaller birds. All seven were banded. This, I believe, is the first record of Brewer's Blackbird nesting and being banded in Illinois."

A postscript to Mr. Lyon's letter which bears date, June 28, 1930, says: "I have just heard that C. E. Holcombe and Wm. Farrar of Zion have banded a nest of five and a nest of three young Brewer's Blackbirds today, on the "Flats" near Twenty-second St., Zion, Ill."

The writer's contribution to the record consists in the finding in Northfield township, Cook County, Ill., a small colony of about six pairs. On June 4, 1930 the birds showed strong attachment to an area of low ground which had been plowed and allowed to grow up into weeds, chiefly water dock and wild parsnip. Much of the ground was quite bare, the rank growth occurring in clumps or patches, and Killdeers and Spotted Sandpipers were nesting near. On June 7 the place was revisited and a search disclosed a nest sunk in the ground at the base of a weed. It contained five nearly fresh eggs. Meantime work with a disk harrow had begun and in a few days any other nests which might have been there were inevitably destroyed. On June 15 Mr. Jas. White collected a male and a female and found the remains of a nest. On this date (June 30) the birds appear to have established themselves in an old field not far off from the original site. Here they are less likely to be disturbed.—EDWARD R. FORD, 1224 Isabella St., Wilmette, Ill.

The European Goldfinch at Buffalo, N. Y.—On the campus of the University of Buffalo, at 3:30 on the sunny afternoon of October 17, 1929, my attention was attracted by an unusual bird song. The bird was immediately located in a small group of sunflowers in the Botanic Garden, and even at a distance of about 200 feet, a marked vertical light colored area was noticed on the side of the head. The general nature of the song,

the size of the bird, and its feeding action suggested the American Goldfinch, but the appearance of the head was so unusual that an attempt was made to get as close to it as possible, for I did not have my binoculars with me at the time.

Although in plain view of the bird it was easy to approach and stand within twenty-five feet of it, to make note of its markings and watch it feeding on the sunflower seeds. During the ten or twelve minutes it was under observation, it remained perched on a sunflower head from which it was trying to extract seed, and continued to sing and feed without being in the least disturbed by my presence. The feeding reactions were typical of those of our American Goldfinch (*Astragalinus tristis tristis*) and its flight was also quite similar.

The bright red fore-face, bordered by the whitish vertical band (which had attracted my attention) across the side of the head and upper throat and the prominent yellow patch on the wing betrayed the bird as the European Goldfinch (*Carduelis carduelis*).

Having finished its feeding, it flew leisurely toward me, passing within ten feet and continued in a northwesterly direction, and was not seen again.

Upon consulting the literature, the identification was verified and no reference has been found of its previous occurrence in this part of the state. Several of the leading bird students of this region have been consulted, but no one has yet been found who knows of a previous record here.

It is to be hoped that this is not a case of a single straggler but that those which succeeded in establishing themselves near New York City, where they were introduced in 1878, have begun to spread, throughout the state.—ALBERT R. SHADLE, *Buffalo, N. Y.*

Unusual Markings on Rose-Breasted Grosbeak.—While on a collecting trip, near Momence, Illinois, and along the Kankakee River, I took a specimen of a Rose-Breasted Grosbeak (*Hedymeles ludoviciana*), the under wing-coverts of which were marked differently from those of the other specimens taken.

This bird, a female, taken on May 16, 1930, about seventy-five feet from the river's edge, had the under wing-coverts and axillars rose-pink instead of the customary yellow.

After returning to the Museum, I compared this specimen with others in the study collection and found only one other bird, after examining thirty-two females in the collection, that compared with the specimen I had taken: the under wing-coverts in this bird being rose-pink, also. This bird was taken September 5, 1895, near Addison, Illinois.

I have looked up several authorities for information on the above, but they all give the under wing-coverts and axillars in the adult female, in summer and winter plumage, as yellow (maize-yellow, chrome-yellow, or light orange-yellow) instead of rose-pink.

There could have been no doubt as to the sex of this bird, as the ovaries were very large and prominent, and with one egg ready to be laid and

others forming.—JOHN WILLIAM MOYER, *Field Museum of Natural History, Chicago, Illinois.*

Two Unusual Nesting Sites of the Carolina Junco.—Having made something of a study of the nesting habits of the Carolina Junco (*Junco hyemalis carolinensis*) during summers spent in the mountains of western North Carolina where this form is abundant, the writer has published notes on this subject in former issues of 'The Auk.' Two highly unusual nesting sites came under his observation during this past summer and seem worthy of notice.

The first of these was discovered in early July the nest being placed on a rafter of a garage. Three other nests in normal situations were found on the place inside of a week, all of which were under banks. The garage nest was identical with that of a Phoebe in regard to situation. A prominent item of building material was a strand of small rope, knotted at one end. This dangled a foot or so below the rafter. In all the writer's experience with scores of nests of this bird, it was the first found anywhere than under the overhang of a bank, or in a small thickly growing evergreen. The garage nest contained young on the point of flight, the adult was seen to feed them several times.

Even stranger than the first was the situation of the other nest. This was built in a fern basket on the porch of a large house, a porch much frequented by the family and visitors. The basket was not of the swinging type but stood upon an iron stand immediately to one side of the doorway to the living room. The stand was literally less than a foot from it. The plants in it were luxurious and the bird could only be seen on the nest by looking closely. The nest was sunk into the earth of the basket and contained four eggs when the writer examined it, the sitting bird being flushed purposely although it allowed approach to within six inches. Some of the material was the thread of a porch mat and while the nest was in process of construction the bird would fly down on the mat and up to the basket with several people sitting within a few yards. Just why this location was chosen instead of a thousand more natural places in the adjacent garden is inexplicable, and it is strange that these two highly unique nesting sites should be found in the same summer when many other years have revealed nothing of the sort.

These nests were found at Blowing Rock, Watauga County, North Carolina at an altitude of 4100 ft., July 2-7, 1930.—ALEXANDER SPRUNT, JR., 92 South Battery, Charleston, S. C.

Third Nesting Record of the Rocky Mountain Evening Grosbeak in New Mexico—My good luck in finding a set of five eggs of the Rocky Mountain Evening Grosbeak on June 22, 1930, gave me a great thrill, more especially since it was my first discovery of a nest with eggs in some thirteen years of collecting in New Mexico.

The nest was discovered in Santa Fe Canyon across the Sangre de

Cristo mountain range from the location of the first nest of the species in the State (F. J. Birtwell, 1901) and about two miles from the site of the second nest (M. W. Talbot, 1928).

On reconnaissance trips in late May I had located a few birds in this rough section of the canyon, characterized by steep, timbered slopes. On June 8, and again on June 15, Mr. Talbot and I searched this locality, unsuccessfully. On the first date, however, we observed a female Grosbeak collecting nesting material and accompanied by the male which was doing much talking but apparently no work! We were unable to trace their erratic line of flight, interrupted by two alightings before they passed from view. On the second date, June 15, we again searched the area for several hours, unsuccessfully so far as eggs were concerned. We saw and heard at least one pair of Grosbeaks, and probably more, at intervals during the day. Near the top of a large white fir, to which our suspicion had begun to center, I found a partially completed nest of unknown ownership, that apparently had been recently abandoned. From its flimsy construction, resemblance to the "Talbot nest," and dissimilarity to the nest of any other bird from long experience known to occur in the canyon, I was inclined to guess that it was a Grosbeak nest, perhaps even that of the pair of birds seen the previous week, and abandoned after our unwelcome intrusion. But this was only a guess; definite evidence was lacking.

On June 22, I again visited the area, cherishing the slim hope that a late-nesting pair might still be found. After about an hour of walking and listening, I heard the faint, characteristic call note of a Grosbeak and, quite in contrast with my experiences in many previous searches, the call note was repeated at short intervals, until I reached the tree in which was located the nest and the brooding female that was calling.

The nest was located about 35 feet up in a Douglas fir, on a six-foot limb and about two feet from the main tree trunk. It was partly supported by small twigs but, in contrast to the "Talbot nest," was in such plain view from underneath that at first glance I thought it was a nest of the Western Tanager.

While I was climbing the tree, the female Grosbeak remained quiet until I was within arm's length of the nest, then she gave an alarm call, and dived almost vertically downward nearly to the ground. She returned immediately and in a moment was joined by two more females and two males, all of whom circled close to me, repeating their alarm note, and occasionally perching nearby, one within two feet.

The nest, five inches across, was very loosely made of twigs, but with a distinct depression one inch deep and three inches across, and thinly lined with pine needles, a few shreds of moss, and two small pieces of fine grass stems. It thus more closely resembled Birtwell's nest than Talbot's, both of which are described by Mrs. Bailey in "The Birds of New Mexico." Definite conclusions cannot, of course, be based on three records, but the indications are that Grosbeak nests differ considerably,

both in location and in construction. And, judging from previous records, a set of five eggs probably is unusual.—J. K. JENSEN, *Santa Fe, New Mexico*.

Rocky Mountain Orange-crowned Warbler (*Vermivora celata orestura*) in **Clayton County, Iowa**.—On May 12, 1926, the writer secured a male of this sub-species, near the village of Giard. Identification was made by Dr. H. C. Oberholser. There are several previous records, east of its range. One from Fort Snelling, Minn., and one from Williamsport, Pa.—OSCAR P. ALLERT, *McGregor, Iowa*.

Nesting of the Cerulean Warbler in Piedmont, Virginia.—The Cerulean Warbler (*Dendroica cerulea*), a fairly common migrant in the Piedmont region of Virginia, appears to be nesting sparingly around Lynchburg. I understand that Bradford Torrey once made a special trip to prove to himself a report that this species was nesting at Natural Bridge, Virginia. I have heard the unmistakable song of the Cerulean Warbler several times in the past four years, during the breeding season, in Lynchburg and vicinity. On June 12, 1927, I heard its song on Tye River in Nelson County at an altitude of about 850 feet. On July 17, 1927, and on July 27 and 28, 1930, individuals were heard singing within the city limits of Lynchburg. We also heard the song of the Cerulean twice during June, on trips in the nearby Blue Ridge mountains.—RUSKIN S. FREER, *Lynchburg, Va.*

A Breeding Record for the Winter Wren in the Mountains of North Carolina.—From what the writers can learn, by a perusal of 'Birds of North Carolina' by Pearson and Brimley, there seems to be but one specific record of the breeding of *Nannus h. hyemalis* in that State. To quote from this work: "Cairns found it breeding on Black Mountain;" Rhoads is also stated to have found it in the fir belt of Roan Mountain in June; Sherman heard one singing on Grandfather Mountain at 5000 ft. in late June, and Pearson heard two singing on Mount Mitchell at 6500 ft., in August.

In view of these records it will be of interest to record that we saw an adult feeding young birds on August 1, 1930, on the slopes of Grandfather Mountain at an elevation of about 5200 ft. In descending what is known as the "chin" of the mountain, a chattering note coming from near the trail attracted our attention. The note was distinctly Wren-like and we dropped down on a fallen log and awaited results. In a short time an adult Winter Wren appeared followed by another and though the surroundings were quite thick and heavy, we saw that one had food in its bill. Just at this juncture, a very thin, high note was heard which we took to be that of a young bird, and in another moment we saw the adult fly a few feet and alight beside a youngster hitherto unnoticed, and feed it. This took place six times in a very few minutes and it transpired that there were at least two young. One came very near to us, just being able to

fly and the yellow lining of the mouth was plainly visible. At one time we both had our glasses trained on an unaccompanied youngster and the adult suddenly flashed into the field and fed it while we watched. We were both impressed by the fact that the youngster seemed larger than the adult.

In its search for food, the adult kept very close to the trail and we were interested to see that it frequently circled the trunks of trees in exactly the same manner as a feeding Nuthatch. Earlier in the day, we had heard the song of this species in two other parts of the mountain. There were at least five singing birds beside the pair we saw feeding young, which last did not sing at all. This observation was made in Avery County, Grandfather Mountain lying in three counties, Caldwell, Watauga, and Avery.—ALEXANDER SPRUNT, JR., *Charleston, S. C.*, and JAMES J. MURRAY, *Lexington, Va.*

Intoxicated Robins.—There are many clumps of bush honeysuckle in a large park immediately adjacent to my Denver home. These bushes produce, in July, an abundant crop of small bitter red berries, which are greedily eaten by Robins, old and young.

For several seasons past my neighbor Mr. F. S. Bonfils, and I have noted a condition of more or less profound intoxication in these Robins after they have eaten these berries. This drunkenness has been seen in every shade of severity, from mild unsteadiness to a degree of incoordination sufficient to cause the birds to fall to the ground. It seems to make some of the birds utterly fearless and perhaps a bit belligerent, for they become quite unafraid of passers-by and interested spectators. A few dead Robins have been found about these honeysuckle bushes, suggesting the idea that some birds consume enough of the berries to carry the toxemia to the threshold of lethality. There has been as yet no opportunity to make an autopsy on one of these dead Robins, presumably poisoned by the berry diet.

Mr. F. C. Lincoln and his colleagues of the Biological Survey have been kind enough to identify this honeysuckle bush for me, as *Lonicera tatarica*. The botanists of the Survey informed Mr. Lincoln that this species contains saponin, an ingredient which readily explains the intoxication outlined above. Other bushes and plants also contain saponin, as for example seneca, horse-chestnut and sarsaparilla. Saponin is a well known toxic glucoside; locally used it acts as an anesthetic and muscle poison, and when given hypodermically or by the alimentary tract, paralyses the greater nerve centers. In sufficiently large doses it causes death by cardiac paralysis. In Robins this assumed saponin poisoning resembles that of ethyl alcohol if the poison be taken in moderate doses, but larger doses are much more toxic than the alcohol. To me the most interesting thing about the situation under discussion is the fact that the birds have not learned to avoid these injurious berries. This explodes the myth that no animal eats anything harmful to itself.—W. H. BERGTOLD, *Denver, Colo.*

Nantucket Island Notes.—At "Quays," on January 14, 1930 at 2:30 P.M., Mr. W. D. Carpenter and Mr. Irving Sandsbury saw about thirty-five Black-crowned Night Herons (*Nycticorax nycticorax naevius*). On June 21, 1930 while Miss Grace Wyatt and I were in the "Hidden Forest," there were very few birds to be seen, and the place seemed deserted but just before leaving Miss Wyatt called my attention to a small bird. We stood still and it soon returned with a white grub in its bill, which it carried to a sourwood stump four inches in diameter, and three feet high, the top being broken off in a slant, in which there was a hole one and three quarters inches in diameter at the entrance, and widening out lower down, with an estimated depth of ten inches. Inside we saw two young birds nearly ready to leave the nest. The parent bird, a Chickadee (*Penthestes atricapillus atricapillus*), came several times while we stood there with a white grub in its bill and alighted within eight feet of us. It showed no signs of solicitude at our presence.

During the latter part of January, 1930, Mr. W. D. Carpenter of Nantucket, saw a Mockingbird (*Mimus polyglottos polyglottos*) which came to his yard with other birds to be fed. Only one was seen. Mr. Carpenter used to spend the winter in Florida and knows the bird.

Hudsonian Curlew. Nantucket, August 22, 1930. In riding over the Commons this afternoon with two ladies who are interested in birds, we came upon a flock of Hudsonian Curlew (*Numenius hudsonicus*) which we have here every year, as far back as I can remember; there were about thirty-five to forty birds, and standing out very prominently among them was an albino; we drove the automobile some five or six times, towards them, as they did not go far, but we could not get nearer than one hundred and fifty yards of them, but as we all had field glasses, we could see them plainly. In striking contrast to its brown companions, this albino bird was white on all the upper parts, head and neck, the under tail coverts were yellowish white, the half of the curved bill towards the end was pinkish in color, the basal half was darker, albinos in shore and marsh birds are extremely rare.—GEORGE H. MACKAY, Nantucket, Mass.

Unusual Observations for Western Pennsylvania.—On May 15, 1930, while collecting birds for the Carnegie Museum in Pymatuning Swamp near Shermansville, Crawford County, Pennsylvania, I located a colony of Short-billed Marsh Wrens (*Cistothorus stellaris*). They were located in a marshy field alongside a corduroy road running through the swamp from Shermansville southwestwardly to Stewartville. Long, thick, marsh grass covered this field and the bent over dead grass formed a thick mat near the ground. At least six males were singing from tall weed stems, the sound being very similar to that made by the rapid striking together of two pebbles. While singing the tails of the birds were bent over their backs almost touching their heads. If too closely approached the birds would dive down among the thick mat of grass and reappear at a

distance in another direction. The birds taken proved to be males. Search for a nest at this locality was unrewarded.

On May 29, about a mile southeast of Linesville, Crawford County, Pennsylvania, I flushed a Short-billed Marsh Wren and found a nest with four eggs in it. The nest was located in a grass covered, abandoned onion field. The ball-shaped nest, woven of dried grasses stood about a foot above the ground in a tuft of grass and had a small circular opening, one inch in diameter, on the south side. When I went back to photograph it two days later it contained six eggs. I believe this is the first record for western Pennsylvania. About a quarter of a mile southwardly a dummy nest was found guarded by a scolding male. This nest was made of green grass and placed in a bunch of the same material, about one foot from the ground.

On May 20 in a flooded field one mile south of Linesville, Crawford County, Pennsylvania, I saw three birds resembling Wilson's Snipe feeding with a flock of Lesser Yellow-legs. As I approached, the Yellow-legs flew off, but the other birds remained. Looking them over with an eight power glass and getting to within a hundred feet of them I saw that they were Dowitchers. They became alarmed upon my approach and flew away joining the Yellow-legs circling over the field. They circled close over head and I was fortunate enough to drop one from the flock, making identification certain. The bird was a female Dowitcher (*Limnodromus griseus griseus*), ovaries small, throat and breast bright reddish-brown. This bird is the second specimen of the Dowitcher from western Pennsylvania in the Carnegie Museum.

On July 19, 1930, while visiting the Duquesne Boy Scout Camp, located on Loyalhanna Creek near Rector, Westmoreland County, Pennsylvania, I observed the Little Blue Heron (*Florida caerulea caerulea*). While rowing up the creek I saw a large white bird standing near the bank. As the boat approached the bird flew up stream. Because of the shallow water near the bank, I abandoned the boat and waded. As I rounded a bend in the stream, screened by low black willows I again saw the bird at a distance of one hundred feet. It stood about two feet high; plumage white, feet and legs greenish yellow. After watching it for about three minutes it became alarmed and flew away. The next afternoon three of these birds were observed flying over camp and the same evening a flock of nine all in the white plumage. At this time the slate colored wing tips were noticeable.—REINHOLD L. FRICKE, *Preparator, Section of Public Education, Carnegie Museum, Pittsburg.*

Notes on Water Birds of the Piedmont of Virginia.—In 'The Auk' for April, 1929 (Vol. XLVI, No. 2, p. 226) the writer reported observations on migrating waterfowl at Timberlake, a new artificial lake near Lynchburg, Va. Until the past spring the number of birds visiting the lake has never been as large as during the fall of 1927, the greatest number for the autumn of 1929 being forty-eight individuals listed on one day,

November 23, 1929. On April 2, 1930, however, eighty-six Ducks, ten Pied-billed Grebes and a Herring Gull were on the lake. This is the largest number of water birds seen on the lake at one time since its development in the spring of 1926.

Since the appearance of the first note above referred to, in which seventeen species were listed, eleven new species have been found at the lake, and a rather rare species previously reported has been observed again. Notes on these species follow:

Larus argentatus. HERRING GULL.—One bird seen April 2, 1930.

Larus philadelphia. BONAPARTE'S GULL.—A single bird, still in winter plumage, was observed at the lake during a storm on April 15, 1929.

Mergus serrator. RED-BREASTED MERGANSER.—Six males and one female observed on April 2, 1930; two males and ten females on April 20; one or two birds observed at other times.

Mareca americana. BALDPATE.—Two males, March 30; four males and one female, April 2, 1930.

Querquedula discors. BLUE-WINGED TEAL.—One male, March 26, another male on April 24, 1930.

Spatula clypeata. SHOVELLER.—Four males and five females seen on April 3, 1930.

Aix sponsa. WOOD DUCK.—A pair seen on April 2 and 3, and a male on April 13, 1930.

Marila valisineria. CANVAS-BACK.—A single male seen November 28, and December 7 and 14, 1929.

Totanus melanoleucus. GREATER YELLOW-LEGS.—Two birds were found on April 7, 1929. Only one bird was seen this past spring, on April 25.

Totanus flavipes. YELLOW-LEGS.—Two birds joined the Greater Yellow-legs on April 12, 1929. The four birds stayed at the lake until about April 19. A larger flock of *T. flavipes* was seen at the lake on April 28, 1929. On May 16, 1930, a flock of twenty was seen.

Nyroca collaris. RING-NECKED DUCK.—A single female was seen on March 3, 1930. This bird did not stay, but on March 11, 1930, two males and a female were observed closely with a telescope. On April 1, there were three females, and on the next day, a male and eight females. Since April 2, only one female has been seen, but it was seen many times up to May 18.

Colymbus holboellii. HOLBOELL'S GREBE.—Reported in the former note, and the Ring-necked Duck (*Nyroca collaris*) are of particular interest because of few reports of them for this section. The Grebe has been observed by the writer several times this past spring, on the following dates: February 21, 22, 23, 26, 28, and March 6 and 8. Without a doubt the one bird stayed at the lake through the period from February 21 to March 8.

Dr. Wm. C. Rives, in his 'Catalogue of the Birds of the Virginias' (1890) speaks of it as "a not uncommon winter resident on the sea coast and larger rivers of eastern Virginia," but indicates it was rare or seen

only occasionally on Buckhannon, Ohio and Great Kanawha Rivers in West Virginia. Dr. E. A. Smyth, Jr., records only one Holboell's Grebe (January 26, 1914) in his published list for Montgomery County, Virginia. Miss May Thacher Cooke, in 'Birds of the Washington, D. C., Region' (Proceedings of the Biological Society of Washington, Vol. 42, pp. 1-80) states that Holboell's Grebe is an "Occasional visitant for which there are few definite records." She gives one date each for the years 1850, 1854, 1877, two dates for 1916, and one for 1921. Mr. W. H. Ball in 'The Auk' for October, 1929 (Vol. XLVI, No. 4) reports finding *C. holboelli*, one individual, on the Anacostia River in front of the Washington Navy Yard, February 5 and 9, 1929. Dr. J. J. Murray of Lexington, Virginia, writes that he has no local record for *C. holboelli*.

Of the Ring-necked Duck, Dr. Rives states, "Drs. Coues and Prentiss report this species as a rare winter resident on the Potomac near Washington . . . I have no other record of its occurrence in the Tidewater region, though it is probably not very rare." Dr. Smyth states: "In some numbers during March and April, 1906, as many as five together at one time. Only twice since have they been recorded." (Montgomery County, Virginia.) Dr. J. J. Murray, in 'The Auk' for July, 1929 (Vol. XLVI, No. 3, p. 379) reports two males for Lexington for the spring of 1929.

The manager of Timberlake reports seeing "about one hundred white Herons (sp?)" during the spring of 1926, and twenty-six Loons in a flock in 1928. Forty-one Ospreys have been shot at the lake in an effort to protect the fish with which the lake has been stocked at various times.—
RUSKIN S. FREER, *Lynchburg College, Lynchburg, Virginia.*

Notes from Eastern North Carolina.—The following notes from Robeson County, in the southeastern corner of North Carolina, are given as additions to the records in 'The Birds of North Carolina,' by Pearson and the Brimleys.

Dryobates borealis. RED-CKOADED WOODPECKER.—Pearson and the Brimleys note it only from nine counties in the State. I would add Robeson Co. They note very few nesting records. I found a pair feeding young in a nest near Red Springs, N. C., May 17, 1930.

Sturnus vulgaris. STARLING.—Now a common breeder in Robeson Co.

Protonotaria citrea. PROTHONOTARY WARBLER.—Pearson and the Brimleys say, "In this State we have but few records of nests having been found." On May 16, 1930, at St. Pauls, N. C., I saw a pair, or rather the female, which seemed to be doing all the work, building a nest in a hole about fifteen feet up in a dead stub in a swamp. She made thirteen trips with moss or plant down in twenty minutes. The male was usually singing in the vicinity, and occasionally escorted her to the hole, looking in while she was out of sight within.

Dendroica magnolia. MAGNOLIA WARBLER.—Recorded by Pearson and the Brimleys only from Raleigh west. I saw one male in a swamp near Red Springs on May 12, 1930.

Icteria virens virens. YELLOW-BREASTED CHAT.—Pearson and the Brimleys record it from the central and western parts of the State but say that "it appears to be absent from the eastern border." I found it fairly common in the thickets on the edge of a savannah near Shannon, N. C., on May 17, 1930.—J. J. MURRAY, Lexington, Va.

Some Recent Notes from Coastal South Carolina.—*Florida caerulea caerulea*. LITTLE BLUE HERON.—While engaged in banding young birds in a rookery among the salt marshes of James Island, Charleston County, S. C., on June 21, 1930, the writer, together with Mr. E. Milby Burton and Herbert R. Sass examined a nest of the Little Blue Heron which contained nine eggs. The rookery is on a small island owned and protected by the Charleston Museum, and supports a thriving population of Little Blue, Snowy, and Black-crowned Night Herons. While it occupies but two or three acres, the nesting birds were estimated at about 1500 pairs and more than 500 young were banded during June, 1930. The writer mentioned ('The Auk', Oct., 1929) that a nest of the Snowy Heron was found there last year which contained six eggs. Three nests with six eggs each were found this year but the nine egg nest is absolutely unique in the writer's experience of many years in the low country. The eggs were piled on each other for lack of space and the only conclusion possible is that two Herons were using the nest though this has never come under the writer's observation heretofore.

Limosa fedoa. MARBLED GODWIT.—On June 28, 1930, three Marbled Godwits were seen in a small pond on Cape Island, C. S., a short distance from the Cape Romain Lighthouse, and in the area recently acquired by the Government as a bird sanctuary. The writer with Mr. E. Milby Burton of Charleston, was examining a colony of Black Skimmers (*Rynchops nigra*) and seeing a Hudsonian Curlew (*Numenius hudsonicus*) fly down into the nearby dunes, we walked over to see the pond behind the sand hills, and with the Curlew were the three Godwits. They allowed us to approach to within fifty yards, preening their plumage and standing about in an unconcerned manner. The upcurve of the bills was noticeable without the aid of glasses and we watched the birds for sometime before flushing them purposely. The Curlew appeared small in comparison. The Marbled Godwit is an uncommon bird on the South Carolina coast and certainly not to be expected as late as the last of June. All three appeared to be in perfect health and flew away with strong wing beats. The writer has now observed this rare species in September, November, February, and June on the coast of this state.

Toxastoma rufum. BROWN THRASHER.—The writer is indebted to Mr. E. Milby Burton an enthusiastic bird bander, of Charleston, for the opportunity of recording a strange piece of behavior on the part of a Brown Thrasher in using the same nest two years in succession. Mr. Burton banded the young of a Thrasher which built in a rose vine on the porch of a dwelling house, and this spring was surprised to find that the old nest

which had defied the weather of the fall and winter, was again being used by a pair of Thrashers. Mr. Burton showed me the nest shortly after he found that it was being used again.—ALEXANDER SPRUNT, JR., 92 South Battery, Charleston, S. C.

Some Records from the Savannah River Entrance during 1929.—

During the year several occurrences of interest were noted. None but the last one, however, has the supporting evidence of specimens taken, but all are of species not easily mistaken, except perhaps the Glossy Ibis.

Pelecanus erythrorhynchos. WHITE PELICAN.—On May 12, a single bird was seen resting on the water, about half a mile away. On May 19, Mr. Walter J. Erichson and the writer observed the same or another individual, for some time, under favorable conditions of light and distance.

Chen caerulescens. BLUE GOOSE.—On November 9, three birds were found in company with a mixed flock of Terns and Gulls, and observed through glasses for an hour, at about one hundred yards distance. Two were in adult plumage, and one had the darker head and neck of the immature. The next day on visiting the locality with a rifle they were seen twice, but finally alarmed, left towards the southwest.

Plegadis autumnalis. GLOSSY IBIS.—On November 24, on Turtle Island, three miles from the Savannah River, in South Carolina, a single bird was seen overhead at quite a height, but the glasses showed plainly the curved bill and other characters sufficient for identification. Two other glimpses of this species were had in the ricefield section near Savannah during the summer of 1928. The first on or about June 15 and later on August 12.

Recurvirostra americana. AMERICAN AVOCET.—While watching the Geese mentioned above an Avocet was seen on the edge of the flock, and after the Geese became alarmed and left, an effort was made to collect the bird. It was too shy, however, and lit out on the water, too far away to shoot. It was also seen the next day, but could not be approached.

Circus hudsonius. MARSH HAWK.—A female taken December 16, had paired ovaries. The organs and a portion of the skeleton were preserved, and submitted to the Biological Survey.—IVAN R. TOMKINS, U. S. Dredge Morgan, Charleston, S. C.

Notes on Some Birds Uncommon in Northern Illinois.—*Canutus canutus rufus*. KNOT.—I secured an immature male August 28, 1927, at Beach, Lake Co., Illinois.

Tyto alba pratincola. BARN OWL.—An adult female was brought to me on September 19, 1926. It had been shot by a hunter named Beck in the marsh west of Glencoe, Cook Co., Illinois.

Strix varia varia. BARRED OWL.—A female in my collection was killed by Mr. Richard Paynter near Wheeling, Cook Co., Illinois, January 29, 1928.

Passerherbulus lecontei. LECONTE'S SPARROW.—On October 8, 1927, Mr. James Stevenson secured an immature female at Beach, Illinois.

Chondestes grammacus grammacus. LARK SPARROW.—The only time I have found this bird about Chicago was July 9, 1927, when I secured an adult female at Beach, Illinois.

Spizella pallida. CLAY-COLORED SPARROW.—Mr. Stevenson took a male at Lake Calumet, Chicago, on May 12, 1928.

Bombycilla garrula pallidiceps. BOHEMIAN WAXWING.—Mr. Stevenson and I saw one at Beach, Illinois, on November 12, 1927.

Vireo belli belli. BELL'S VIREO.—A female in my collection was taken June 22, 1906, by Mr. H. S. Swarth at Joliet, Illinois.

Mimus polyglottos polyglottos. MOCKINGBIRD.—May 14, 1927, I took a male at Hyde Lake, Chicago, and saw another. A pair was taken May 12, 1928, at the same place.

Thryomanes bewicki bewicki. BEWICK'S WREN.—A female was secured by me April 16, 1927, at Evanston.—PIERCE BRODKORB, Evanston, Illinois.

Some 1930 notes from Madison, Wis.—*Mareca penelope*. EUROPEAN WIDGEON.—On April 27, in company with Mr. Warner Taylor, I saw a male European Widgeon on a pond near Madison. It was with a male Baldpate and two female birds, the actions of all four plainly indicating that they were paired. During the hour that we watched them neither male could make a move, either swimming or walking, without being closely followed by his lady-love and on one occasion the Widgeon and his mate were seen to touch each other's bills caressingly. Finally these two flew off together, to be followed soon after by the others.

Lobipes lobatus. NORTHERN PHALAROPE.—On May 17, I saw a male and female on a small lake near here. On the 18th there was another male. On the 20th the number had increased to six and by the 21st there were seven, of which four were males. The same number were there until at least the 24th of the month. The birds showed a distinct tendency to pair off, but this had, probably, no significance, since courtship is said to take place on their breeding grounds.

Micropalama himantopus. STILT SANDPIPER.—One seen May 20. Another seen July 11 and collected the following day. The latter bird was still in nuptial plumage and almost identical in appearance with the former. The bright, rusty line below the eye was as pronounced as ever but the one on the side of the crown was less marked than before and did not extend so far back, there being no rusty whatever on the nape. The body plumage had less of a brownish cast but the lower parts were still heavily barred as in spring, with only slight indications of moult.

Catoptrophorus semipalmatus inornatus. WESTERN WILLET.—On May 2 I saw three Willets standing on a muddy bar in a large, marshy pond. They seemed quite exhausted and were huddled close together as if for mutual support, remaining motionless during the half hour that I watched them. There had been a heavy storm the night before which may have accounted for their condition.

Octoria alpestris alpestris. HORNED LARK.—I found a large flock January

25, in a field where fresh manure was being spread on the snow, and I saw them almost daily for a period of two weeks thereafter, together with large numbers of Lapland Longspurs and Snow Buntings.

Ocoris alpestris hoyti. HOYT'S HORNED LARK.—Among the Larks above mentioned were a number that I at first took to be "Prairies." It was not, however, until February 2 that I finally collected one, when I found that although there was not a trace of yellow over the eye, yet in length of wing and in general tone or coloration of the body it more closely resembled an "alpestris" than a "praticola." Suspecting a Hoyt's, I sent it to Dr. Oberholser, by whom it was identified as such. Another specimen was taken the same day by Mr. A. W. Schorger. There is no previous record for the county.

Euphagus cyanocephalus. BREWER'S BLACKBIRD.—In 'The Auk' of October, 1926, I noted finding a pair of these birds, together with the nest and young, on June 9 of that year. The following spring, on a rather hasty trip to the same meadow, I failed to see any of the birds and concluded that they had not returned. The next two years I did not go there at all. May 13 of this year, however, on driving by, I was surprised to see four pairs, apparently nesting. Each pair had its own territory, well separated from the others, to which the birds returned after their frequent excursions, the male usually alighting on some tall weed stalk, his glossy-black form conspicuous above the waving grass. At the time of my former note, there was, I believe, only one definite breeding record for this species in any state east of the Mississippi, that being a nest found by Thure Kumlien near Lake Koshkonong, Jefferson county, Wisconsin, in 1862. (Kumlien & Hollister: "Birds of Wisconsin," 1903.) The nesting of a single pair here in 1926 would, therefore, be regarded as accidental, but the occurrence this year of several pairs, at the same place and undoubtedly nesting, would indicate an eastward extension of their breeding range.—JOHN S. MAIN, Madison, Wisconsin.

The Supposed Plumage of the Eocene Diatryma.—In the 'American Museum Novitates,' no. 62, March 16, 1923, pages 1 to 4, Prof. T. D. A. Cockerell under the name *Diatryma* (?) *filifera* described some long, slender, fossilized filaments from western Colorado as peculiar feathers that it was thought might possibly have come from the great running birds known as the Diatrymas. The specimens came from the vicinity of Roan Creek in beds of Green River Eocene age. The type of this interesting find was subsequently placed by Prof. Cockerell in the paleontological deposits of the U. S. National Museum (Cat. no. 10908).

In assembling data for the revision of the fossil bird list for North America for inclusion in the fourth edition of the A. O. U. Check-List, now in press, the name in question has come up for allocation and has led to the examination of the specimen. With more adequate feather material available in the bird collections of the National Museum than was accessible for comparison to Prof. Cockerell, it becomes evident that *Diatryma* (?) *filifera* is not avian

but belongs in some other group. The specimen is composed of long, narrow, threadlike or hairlike filaments of even width, the longest being more than one hundred millimeters long. On careful examination under a microscope these filaments have smooth, continuous margins, without lateral branches of any kind. No feather of this general length is known in which there are not occasionally at least lateral branches (barbs or barbules). Even in the Cassowary part of the filaments have these lateral elements.—ALEXANDER WETMORE, *Smithsonian Institution, Washington, D. C.*

Another Audubon Copper-plate Located.—On a recent visit to the Pleasant Valley Bird and Wild Flower Sanctuary at Lenox, Massachusetts, I was the overnight guest of Miss Mary Parsons, one of the Trustees of the Sanctuary. Among the many *objets d'art* in the great house, I was interested to find a framed copper-plate of Audubon's folio edition. This plate is listed as Number 362 and contains figures of the Yellow-billed Magpie, Ultramarine Jay, Steller's Jay and Clarke's Nutcracker.

This brings the number of Audubon copper-plates now known and located to forty-two and it was my good fortune to locate the forty-first plate also, as recorded by Mr. Deane in 'The Auk' for July, 1925.

This plate was formerly in the possession of the late Mr. Morris K. Jesup of New York. Miss Parsons writes me as follows regarding her own acquisition of the plate.

"It was a few months after Mr. Jesup's death that I found Mrs. Jesup making piles of things that she thought had no interest and that she wanted to get out of her house in New York. The Audubon plate was among these things. When I told her that the plate was interesting and of some value she would not believe me and jokingly told me to take it if I would give it house-room. My carriage was at the door. I sent for my footman then and there to carry the plate to the carriage, much to Mrs. Jesup's relief!"

It is probable that this is one of the plates which were distributed by Phelps, Dodge and Company as described in the article by Mr. Ruthven Deane in 'The Auk' for October, 1908. Miss Parsons evidently acquired the plate before the days when automobiles were in use.—JOHN B. MAY, *Division of Ornithology, State House, Boston, Massachusetts.*

RECENT LITERATURE.

Bailey's 'Animal Life of the Yellowstone National Park.'—Mr. Vernon Bailey, in this attractive little volume,¹ presents us with an account of the wild life of another of our national parks—the Yellowstone. His previous works on the fauna of the Carlsbad Cavern and, with Mrs. Bailey, on that of Glacier National Park have shown him just what is needed in such a work and have demonstrated to his readers how well he can handle his subject.

As mammals have always been Mr. Bailey's chief interest it is quite natural that the major part of the book should be devoted to them but Chapter IV, covering forty pages, is allotted to the birds. Interesting facts about a number of the most striking species are presented in a readable manner especial attention being given to the Rosy Finches of the high mountains. Three forms of these interesting Arctic-Alpine birds occur in the Park, the Gray-crowned and Hepburn's being common winter residents and the Black Rosy Finch, while belonging in the same category, seems undoubtedly to be also a breeding bird of the highest peaks, although nests have not yet been found within the Park limits. A briefly annotated list of all the birds so far recorded from the Park brings the chapter to a close.

There are excellent colored plates of the Bald Eagle and the Rosy Finches, the former by Robert Ridgway from the painting already published in Fisher's 'Hawks and Owls,' and the latter from an original painting by O. J. Murie; also seven half-tones mainly from photographs. One of the latter depicts two Trumpeter Swans in the National Zoological Park at Washington, a species which is still represented by a few pairs on the larger lakes of the Yellowstone and which is rigidly protected and reported to be increasing. The Sandhill Crane, another "vanishing" species, also persists in the Park in small numbers.

The mammal illustrations are numerous and interesting including a colored plate of the Grizzly Bear from a painting by Murie.

Mr. Bailey's book should increase the interest that all feel in the maintenance of wild life in the National Parks, and let us hope that it will help to make these spots sanctuaries for the persecuted predatory species the so called "vermin" for the extermination of which commercial interests are calling so loudly,—a call to which unfortunately state and government agencies in charge of wild life are too prone at the present time to give ear.

Mr. Bailey is to be heartily congratulated upon an excellent piece of educational work as well as a work of reference and an interesting piece of reading.—W. S.

¹ *Animal Life of Yellowstone National Park.* By Vernon Bailey, Chief Field Naturalist United States Biological Survey. Charles C. Thomas, Publisher, Springfield, Illinois and Baltimore, Maryland. 1930. Pp. 1-241. Price \$4.00.

Friedmann on Birds of the Frick African Expedition.¹—It has been a matter of great regret to the friends of the late Col. Edgar A. Mearns, whose tireless energy is responsible for the splendid series of African birds obtained by the Smithsonian-Roosevelt and the Childs Frick expeditions, that no general report on the collections has ever appeared. This failure has now however been partly remedied by the appearance of Dr. Herbert Friedmann's admirable report on the non-passerine birds of the latter expedition. Col. Mearns had already published descriptions of many of the novelties which he obtained on both trips but many other forms undescribed at the time of his death in 1916, have in the meantime been made known and named by subsequent explorers and thus a measure of the credit that really belonged to Mearns has unavoidably been lost to him.

We cannot speak too highly of the admirable way in which Dr. Friedmann has handled his report which we feel sure would realize the ideal that Col. Mearns had in mind and the preparation of which has been aided materially by the author's personal acquaintance with East Africa.

Not only have Col. Mearns' manuscript notes been embodied in the report but the entire literature bearing on the bird life of the region has been exhaustively studied and quoted extensively. The collections of most of the American museums and of some of the European institutions as well have been studied by Dr. Friedmann and material has been loaned to him for comparison with the Frick collection. Naturally this has led to discussions of the relationship of various races with allied forms in other parts of Africa and the publication thus becomes a standard work of reference on African ornithology in general.

In many groups outline maps are incorporated in the text showing graphically the distribution of the various races and there are many tables of measurements. Under each form is given a list of all the specimens collected by the expedition with notes by Mearns on the few that were not obtained but were identified in the field. If our count be correct 259 species and subspecies are represented in that part of the collection covered by the report and fully twice as many are discussed incidentally. Systematically the reference is given for the original description of every form while there is a full discussion of nomenclature and treatment by other authors with convenient foot note references.

Descriptions of the various plumages of a number of species form a valuable contribution to the subject of plumage sequence, while the discussions of distribution of individual species and races incidentally furnish material for the study of the zoogeography of the African continent.

The sequence of genera and species follows Sclater's 'Systema' while that of the higher groups is in accordance with Wetmore's more modern classification. There is a colored plate of Jackson's Barbet by Allen Brooks and a number of half-tones of scenery from photographs.

¹ Birds Collected by the Childs Frick Expedition to Ethiopia and Kenya Colony. Part I. Non-passeres. Bulletin 153 U. S. National Museum. 1930. pp. i-xiii + 1-516. Price \$1.00, apply the Supt. of Documents, Washington, D. C.

We wish Dr. Friedmann all speed with the remainder of his task and the report on the birds of the Roosevelt Expedition which we understand is to follow, and feel that we can speak for all students of African ornithology in congratulating him upon an excellent piece of work.—W. S.

Hortling's 'Handbook of Finland Birds.'—Of this pretentious work,¹ entirely in the Finnish language, three parts have appeared, leaving the Shore-birds, Gulls, and other sea birds to be covered by another installment.

Under each species is a description of the male, female and young; a paragraph devoted to song and call notes, presented by the syllabic method, and others on nest and eggs, migration and extralimital races. There is also a list of the names given to the birds in the various languages of the countries in which they occur, with their origins.

Half-tone illustrations are scattered through the text some from photographs of the live birds but mainly from mounted specimens. The work is thoroughly up to date both in the manner of treatment and in nomenclature and is excellently printed.

It will form an admirable handbook for Finnish bird students as well as a work of reference for ornithologists in other lands.—W. S.

La Touche's 'Handbook of the Birds of Eastern China.'²—Part V of this important work is before us completing Volume I, the Passeres. It covers the Pipits, Larks, White-eyes, Sunbirds, Flower-peckers, Pittas and Broadbills. There follow eleven pages of "corrigenda and addenda" covering the five parts that have been published and an index.

This last part of the work fully maintains the high standard of its predecessors and the publication should long stand as our authority for the birds of the region it covers.—W. S.

Recent Papers by Chasen and Kloss.—Messrs. Chasen and Kloss have published a review of the puzzling genus of Malay Flycatchers, *Cyornis*³ in which for the most part they accept the treatment of Stressemann (Ornith. Monatsb., 1925, pp. 43-53) as far as it goes and amplify it with the aid of additional material. They recognize seven specific groups to which the various races are assigned. No new forms are proposed but a point well worthy of careful consideration in the fine discrimination of subspecies is emphazid, i. e. the post mortem change in color of the plumage of the under parts of these birds; freshly killed specimens being yellower and less rusty than older skins. Dr. Chapman has called attention to the

¹ Ornithologisk Handbok med beskrivningar öfver alla i Finland anträffade fåglarter och raser jämte avbildningar och enkom utförda ving- och äggmatt m. m. samt namnförklaringar. Utgiven av Dr Ivar Hortling. Helsingfors 1929. pp. 1-200; 201-400; 401-600. Price Fmk. 75 per part.

² Taylor and Francis Red Lion Court, Fleet St. London. E. C. 4. Part V, July 1930. pp. 395-500—title page etc. Price 7s. 6d. net.

³ On some Birds of the Genus *Cyornis*. By F. N. Chasen and C. Boden Kloss. Bull. Raffles Mus. No. 2, July 1929. 23-42.

same thing in very old skins of *Turdus gigas* of South America, as compared with freshly killed individuals.

In a second paper¹ our authors have described *Hypothymis azurea javana* (p. 22) Java; and *Munia atricapilla batakana* (p. 22) Sumatra.—W. S.

Papers on Minnesota Birds.—In a recent number of the Occasional Papers of the Museum of the University of Minnesota² are several interesting ornithological papers.

Dr. T. S. Roberts describes some changes in the distribution of certain Minnesota birds in the last fifty years. Sixteen species are considered of which eleven are recent immigrants from farther south. The Red-bellied Woodpecker, Cardinal, Prothonotary Warbler and Louisiana Water-Thrush are now established summer residents and breed regularly while the Barn Owl, Cerulean, and Blue-winged Warblers, Bewick's and Carolina Wrens, Tufted Tit and Gnatcatcher, while not yet common, are steadily increasing in numbers and breeding records for all have been established.

Five species have come into the State from the west—Brewer's Black bird and the Arkansas Kingbird being now well established while the Burrowing Owl, Lark Bunting and Chestnut-colored Longspur are not yet common. Mr. William Kilgore has a paper on the breeding of the Connecticut Warbler in which he presents all the data so far published with a complete bibliography.

W. J. Breckenridge summarizes the breeding records of Nelson's Sparrow in Minnesota and presents photographs of an authentic nest and eggs while he also describes an interesting hybrid between the Indigo and Lazuli Buntings. There is an excellent colored plate of this hybrid by the author together with the adult and young of Nelson's and LeConte's Sparrows.—W. S.

Poole on Birds of Berks Co., Pa.—Mr. Earl L. Poole, well known as a bird artist and a member of the Delaware Valley Ornithological Club, has compiled an excellent annotated list of the birds of Berks County,³ Pa., to the avifauna of which he has given especial attention during a residence of ten years in the city of Reading where he is now assistant Director of the Reading Public Museum and Art Gallery.

With the coöperation of local bird students he has accumulated much information on dates of occurrence of the various species and this forms the basis of his list. Under each species is given a general statement of the character of its occurrence with average migration dates and full data for the capture or observation of the rarer forms.

¹ Two New Malaysian Birds. Ibid. pp. 22-23.

² Occasional Papers: No. 3. University of Minnesota, Museum of Natural History pp. 1-40 with a plate.

³ The Bird Life of Berks County, Pennsylvania. By Earl L. Poole. Bulletin No. 12 Reading Public Museum and Art Gallery. pp. 1-70 frontispiece plate.

A list of species "reported" as occurring in Berks Co. follows the main list among which we note the Ruddy Turnstone "from near Tuckerton"—obviously, we should think, Tuckerton on the coast of New Jersey, a favorite spot for shore-bird gunners in the past. Mr. Poole has done well to keep this list separate from the main text and we doubt whether many of the birds contained in it really came from Berks Co., so easy is it to make mistakes in cases depending upon memory and to get specimens and data confused.

Well prepared lists such as this are of the utmost importance as they form the basis for state and national catalogues and Mr. Poole is to be congratulated upon an excellent contribution to regional ornithology. An excellent half-tone plate of the Barn Owl from a painting by the author appears as a frontispiece.—W. S.

Wilkinson's 'Shanghai Birds.'—This attractive volume written and published in Shanghai presents descriptions and brief accounts of the habits of the birds found in the vicinity of the city, with colored plates of most of them from paintings by Grönvold. There are also several introductory chapters on identification, bird "sounds," naming of birds, migration and orientation.

The author is to be congratulated upon his success in producing a book that will prove of the greatest assistance to beginners in the study of oriental ornithology and as a result of its publication the next generation should show a great increase in the number of residents in China able to recognize the bird life about them.

The details under each species are well arranged; first a brief statement to aid in field identification bringing out the most striking characters, then a more detailed description with remarks on habits and times of migration, and finally a description of the nest and eggs.

In discussing migration the author has some original remarks on the possibility of an extra sense in birds "which enables them to communicate with one another over long distances," citing the concerted actions of flocking birds and the success of an individual in locating a flock of its own kind at a distant point.

The book is excellently printed and forms a valuable work of reference on the common birds of China.—W. S.

Acworth's 'This Bondage.'²—'This Bondage,' is a curious production, partly because it is a thoroughgoing example of special pleading. The main objects of the work, which are not evident in the early chapters,

¹ *Shanghai Birds. A Study of Bird Life in Shanghai and the Surrounding Districts.* By E. S. Wilkinson. Shanghai North China Daily News and Herald Ltd. 1929. pp. i-xxi + 1-243.

² *This Bondage: A Study of the "Migration" of Birds, Insects, and Aircraft, with some reflections on "Evolution" and Relativity.* By Commander Bernard Acworth, D. S. O., R. N. pp. XXIV-229; 6 figs. London (John Murray), 1930. 8 vo.

appear to be first, to discredit the theory of evolution and "to bring evidence to the aid of faith . . . to assist people . . . to believe implicitly in the actual and active personality of God"; and second, to discourage the hope that aviation has a future of any economic importance.

There is much information on flying—both of birds and aircraft—in this book which is undoubtedly sound and very illuminating. The author brings out forcefully, but at almost too much length, the fact that birds in flight do not ordinarily feel the "pressure of the wind," since they form an intrinsic part of the moving medium, with their own speed superimposed, plus or minus, upon that of the wind, the direction of flight being a resultant vector. From this it follows that, regardless of the strength of the wind, a bird flying in any direction feels only the pressure from directly ahead, which is proportional to its rate of speed. The situation is precisely like that of a fish moving within a current in the sea, or of a fly being carried along by the apparently still air enclosed within a railroad carriage or a ship's cabin. The author, however, boasts of the fact that he arrives at his conclusions from "deduction" rather than observation, and the resulting errors are multifold.

He fails to take the physical fact of inertia sufficiently into consideration, nor does he grant to most birds the superiority over normal meteorological conditions which they undoubtedly have. He builds up an elaborate theory in which zoological dispersal, migration, and other natural phenomena are dependent ultimately upon temperature plus the winds. While his deductions and reasoning are not without considerable value, they are undoubtedly of most value to one capable of realizing the weakness of Commander Acworth's ornithological information. As a matter of fact, the distribution of birds, fossil and extant, bears practically no relation to his idea of this subject. He is obviously innocent of knowledge about any recent experimental work on the incipience of migratory impulse in birds. In developing his own special theories he sets up one straw man after another and succeeds to his own satisfaction in knocking it down.—R. C. M.

Collinge on British Corvidae.¹—Supplementing previous separate reports on the Jackdaw and Rook, the present paper deals with four other members of the family occurring in the British Isles. In an introductory way Dr. Collinge says: "Among the whole of our British wild birds there are few families more difficult to deal with and to estimate the economic status of the different species than the Crow family, for their activities affect a wide series of interests, the least important of which—from an economic standpoint—is perhaps the noisiest and most persistent in their wholesale condemnation. It is therefore highly important that we draw no hasty conclusions, but endeavor to sift all the evidence and take a wide view of the sum total of their activities. The persecution of the members of this family is due entirely to the fact that for a few weeks of the year

¹ Collinge, Walter E., *The Food and Feeding Habits of some Corvidae*, Journ. Ministry Agr., May 1930, pp. 151-158, 4 graphs.

they include among their food the eggs and young of game birds; they have, moreover, also been known to take the eggs and young of poultry, and have been attacked for this reason. The amount of damage they thus entail has, in the writer's opinion, been exaggerated, and the benefits they confer have been almost ignored. If there were no preservation of game in this country we should hear fewer complaints against these birds; it is therefore essential that we should know, as precisely as possible, the actual damage they do, and carefully weigh against this the benefits they confer in the interests of agriculture."

It is axiomatic that most damage to agriculture by birds must occur in connection with the taking of vegetable food. The four species of *Corvidae* treated by Dr. Collinge are so highly carnivorous (Carrion Crow 79%, Hooded Crow 95.5%, Magpie 74.5%, and Jay 71.5%) that one should not expect them to do much direct harm to agriculture. So the author finds and his conclusions as to these four birds as well as to the two previously published upon are summarized in the following table:

Species	Food Percentages		
	Beneficial	Injurious	Neutral
(1) Carrion Crow.....	23.0	21.0	56.0
(2) Hooded Crow.....	30.5	19.0	50.5
(3) Jackdaw.....	48.5	23.0	28.5
(4) Rook.....	28.5	52.0	19.5
(5) Magpie.....	43.0	16.5	40.5
(6) Jay.....	42.0	16.5	41.5
Total.....	215.5	148.0	236.5
Averages.....	35.9	24.7	39.4

"In conclusion," Dr. Collinge says, "there are two very important points in connection with the economic status of the members of the family *Corvidae* which we should like to emphasize. First, so long as these birds are not too numerous we believe that the benefits they confer far outweigh any injuries they inflict, but if, as in the case of the Rook, they rise above the 'highwater mark of abundance,' the injuries are greater than the benefits. Secondly, the persecution of the four species here treated of is, in the writer's opinion, largely, if not entirely, due to misunderstanding. By countenancing such destruction the agriculturist is robbing himself of a valuable economic factor, since the four species are all distinctly beneficial to agriculture."

There are valuable hints here for American agriculturists as our Crow tribe are "birds of a feather" with those of the British Isles, and similarity in their economic status is to be expected.—W. L. M.

Bird Protection in Japan.—Although no review of this 1927 paper¹ has hitherto appeared in 'The Auk,' it is so full of interest that it should

¹ Uchida, S., *The Present Condition of the Protection of Birds and Mammals in Japan*, 23 pp., 10 Pls., Dept. of Animal Industry, Ministry of Agriculture and Forestry, Tokyo, 1927.

be called to the attention of ornithologists. This interest may be due in part to the setting in a land on the opposite side of the globe, but in part as certainly also it is due to a freshness in point of view and a doing of things without precedent such as America has been noted for, a leadership it may perhaps be losing to "the Yankees of the East."

The report here reviewed states that "The development of civilization and the gradual increase of hunters in Japan has been a principal cause of the decrease of wild animals and birds in general." This situation being thus frankly recognized the Japanese Government decided to carry out a thorough-going move for protection which was done by revising the game laws. There is a universal close season from April 16 to October 14 and even during the open season only birds and mammals on a game list can be hunted. According to our point of view, the list is very comprehensive including in Japan proper about 170 species of birds contrasted to about 250 species which are on the totally protected list. A tabulation is given of the bag for a single season in which we note such unfamiliar items as Ospreys 9,260, Night Herons 43,725, Bramblings 728,411, Rustic Buntings 1,050,992, Dusky Ouzels 1,338,218, Japanese Tree Sparrows 2,240,121, and Japanese Yellow Buntings 10,524,542.

So much for that side of the picture—other countries, other ways. The other side, protection, has for its object preservation of birds useful to agriculture, forestry, and the aquatic products industries, and in addition those which are scarce or in danger of extermination. Protection is secured by a close season, total on 260 species, partial on 170 as noted above, by sanctuaries, by designating areas where hunting of certain species is prohibited, and by establishing certain sites and apparently some birds as natural monuments.

The sanctuaries at the time of the report reviewed numbered 64 national, and 380 prefectural. A typical example is one at the foot of Mt. Fuji. It covers 30,000 hectares, and is known to be visited by 174 species of birds of which 114 breed. There are sanctuaries on migration routes, sanctuaries for sea-birds, a special sanctuary for the sacred Crane and the Japanese Stork, established with the praiseworthy motive as the report notes of "preventing some birds from getting extinct." Certain places where Guano of sea-fowl is gathered also in effect are sanctuaries.

Under the Law for preserving Scenery, Historic and Natural Monuments, up to the date of publication the following Monuments benefiting birds had been established: Two breeding places of Siebold's Shearwaters, all breeding places of the Japanese Stork, Tsushima Island the home of Tristram's Woodpecker, two breeding places of the Black-tailed Gull, Kominato the only place where large flocks of Whooper Swans occur, two wintering grounds of Japanese Cranes, colonies of transplanted Chinese Magpies, islands inhabited by Lidth's Jay, and mountains supporting the Japanese Ptarmigan.

The reasons given for establishing some of these natural monuments are such as to reflect great credit upon any nation as they show not merely

conservation sentiment but deeds, in other words full courage of convictions. For instance of Tristram's Woodpecker it is said that the bird is a very beautiful large Woodpecker, it is very scarce in Japan and even on the point of becoming extinct. Also that "This bird is a valuable species, from scientific viewpoint, as illustrating how Tsushima Island was connected with the Continent during the geological age."

How many cases are there of such practical recognition of what scientists believe to be truths but which even at this late date are regarded in some quarters as heresies?

Again "Of the islands making a line southward from the southern corner of the Island of Kiushiu, Oshima and Tokunoshima are very important, because they are characteristic in distribution of animals. They are situated facing the Shichito Nada line, the line of demarcation dividing the two great regions of animal distribution, the Oriental Region and Palaearctic Region. Lidth's Jay (*Lalocitta lidthi*) and Amami Hare (*Pentalagus furnessi*) are very significant species, from zoological point of view, only peculiar to these two islands. Great care must be taken for their preservation, as their distribution is so narrowly limited. In view of this fact the Japanese Government has recently decided to regard these two species as protected animals and specify them as natural monuments."

Finally it may be noted that one domesticated bird the Long-tailed Fowl has itself been specified as a natural monument. "Thanks to this step taken by the Government, they have lately begun to increase. There are four races of the long-tailed fowl, the one shown in the plate being Shinowarato, the commonest race of the fowl. This race is of a nature of having its tail grown longer than the other three races, it reaching from three to five meters."

The protection of insectivorous birds in Japan and administration of the game law are in the jurisdiction of the Ministry of Agriculture and Forestry while the preservation of the Natural Monuments is handled by the Ministry of Home Affairs. In the former ministry, there is an Experiment Station for Ornithology and Mammalogy which makes investigations of the relations between these animals and agricultural and forestry undertakings and also studies migration, ecology, propagation of game birds, and attraction and protection of beneficial birds. This station put out more than 18,000 nest boxes in a single year.—W. L. M.

Swann's 'Monograph of the Birds of Prey.'—The ninth part¹ of this notable work which is being edited by Dr. Alexander Wetmore from the late author's manuscript has appeared and consists of the title, contents, index and errata to Volume I which is now completed and two colored plates of the Harpy and Monkey-eating Eagles, *Harpia harpyja* and *Pithecopaga jefferyi*.—W. S.

¹ A Monograph of the Birds of Prey. Part IX, June, 1930. Pp. i-lxviii and two plates.

Shorter Papers.

Bowen, W. Wedgwood.—On the genus *Nyctiperdix*. (*Proc. Acad. Nat. Sci. Phila.*, 1930 pp. 145-148.)—Presents much additional data to uphold his previous contention that this genus is distinct from *Pterocles*. Photographs of the habitats of the several forms are published as illustrations.

Bowen, W. Wedgwood. The Relationship of the Bare-throated Francolins (*Pternistes*). (*Proc. Acad. Nat. Sci. Phila.*, 1930, 149-164.)—Fifteen races of *P. afer* are recognized as well as *P. rufopictus* and *P. leucoscepus*. Maps and detailed drawings of feathers and head patterns are presented.

Bowen, W. Wedgwood. Geographical Variation in *Cinnyricinclus leucogaster*. (*Proc. Acad. Nat. Sci. Phila.*, 1930, pp. 165-167.)—Four races recognized of which *C. l. lauragrayae* and *C. l. friedmanni* are described as new.

Case, William L. Passing of the Passenger Pigeon. (*Michigan Hist. Mag.*, XIV, Spring Number, 1930, pp. 262-267.)—Recollections of the nesting and slaughter of the bird from 1870 to 1881.

Cole, L. J., and Hawkins, L. E., Porcupine Pigeons. *Jour. Heredity*, XXI, No. 2, Feb., 1930.)—A curious mutation in which the barbs and barbules develop imperfectly leaving little of the feather structure except the shaft.

Delacour, J., Les Oiseaux migrants de l'Indochine Française. (*Jour. für Orn.*, Band 2, 1929.)—An annotated list.

Figgins, J. D. Proposals Relative to certain subspecific groups of *Carpodacus mexicanus*. (*Proc. Colo. Mus. Nat. Hist.*, IX, No. 1, April 22, 1930.)—Proposes to recognize three races of *Carpodacus mexicanus* from Colorado; *C. m. smithi* (p. 2) for the bird of the eastern side of the continental divide; *C. m. obscurus* McCall, revived for birds from the Arkansas River Valley and southward, and *C. m. sayi* (p. 3) as a substitute for *frontalis* Say. The last proposal is based on a statement by Oberholser ('Auk,' XVI, p. 186), but what Dr. Oberholser was really demonstrating was the ambiguity of a Canon of the A. O. U. Code. This was corrected years ago so that no change such as is advocated by Mr. Figgins is necessary. The very case with which Dr. Oberholser opens his discussion is considered and fully explained in the 'Revised Code' p. lvii and the changes made upon a mistaken idea of the intent of the original Canon were corrected in the last edition of the Check-List, twenty years ago!

Friedmann, Herbert. Geographic Variations in the Genus *Macronyx* with Descriptions of two new Races. (*Occas. Papers Boston Soc. Nat. Hist.*, V, May 7, 1930, pp. 263-266.)—*Macronyx croceus vulturinus* (p. 263), Natal, and *M. aurantiigula subocularis* (p. 266), Kenya Colony are proposed as new.

Ghigi, Alessandro. Birds Observed on the Island of Egeo, Italy. (*Ricerche Faunistiche nelle isole Italiane dell'Egeo*.)—Notes on *Garrulus glandarius rhodius* and *Alectoris graeca cypriotes*. [In Italian.]

Ghigi, Alessandro. On Hybrid Peafowls. (*Proc. Unione Zool. Italiana*, 1926.) [In Italian.]

Griscom, Ludlow. Revisions of two Central American Birds. (*Occas. Papers Boston Soc. Nat. Hist.*, V., June 14, 1930, pp. 287-292.)—*Claravis mondetoura pulchra* (p. 288) western Panama, *C. m. umbrina* (p. 288) Costa Rica, *C. m. salvini* (p. 289) Guatemala and *Habia rubica holobrunnea* (p. 290) Vera Cruz, are proposed as new.

Kalmbach, E. R. English Sparrow Control. (*Leaflet* 61. U. S. Dept. Agric., June, 1930.)—Methods of control by trapping and destruction of nests are described. In as much as the automobile seems to be most effectually reducing the numbers of Sparrows throughout the country to a relatively harmless level it would seem to be high time that the Department took up the subject of the Starling which will undoubtedly before long prove the pest that it has become in Great Britain. Already it is seriously crowding out the native birds in many localities and its insect destroying qualities do not seem to exceed those of the native birds that it is replacing. More publicity on methods of destroying the Starling and holding it in check would be welcome.

Kozlova, E. Life History of *Pratincola insignis* (*Compt. Rend. Acad. Sci., del' Urss.* 1930, pp. 175-178). [In German.]

Lincoln, F. C. Calculating Waterfowl Abundance on Basis of Banding Returns. (*Circular* 118, U. S. Dept. Agric., May 1930, pp. 1-4.)

Riley, J. H. Four New Forms of Birds from Szechwan, China. (*Proc. Biol. Soc. Wash.*, Vol. 43, July 18, 1930, pp. 133-136.)—*Columba rupestris austriana* (p. 233), *Yuhina nigrimentum quarta* (p. 134) *Y. gularis omeiensis* (p. 134) and *Garrulax albogularis laetus* (p. 134).

Riley, J. H. Two new Forms of Laughing Thrushes from Yunnan (*Proc. Biol. Soc. Wash.*, Vol. 43, June 5, 1930, pp. 79-80.)—*Garrulax albogularis eous* (p. 79) and *Dryonastes berthemyi ricinus* (p. 80).

Riley, J. H. A New Species of *Fulvetta* from Yunnan, China. (*Proc. Biol. Soc. Wash.*, Vol. 43, June 13, 1930, pp. 123-124.)—*Fulvetta insperata* (p. 123).

Rowan, William. The Mechanism of Bird Migration. (*Science Progress*, No. 97, pp. 70-78. July, 1930.)—Summary of Methods and results in causing northward migration in autumn by producing recrudescence in the gonads.

Rowan, William. Experiments in Bird Migration II. Reversed Migration. (*Proc. Nat. Acad. Sci.*, Vol. 16, No. 7, July, 1930, 520-525.)—More detailed account of the above experiment with Crows instead of Juncos.

Walker, Lewis W. Economic Value of Predatory Animals. (*Zool. Soc. San Diego Balboa Park*, 1930.)—An excellent demonstration of the foolishness of the slaughter of Hawks and Owls.

van Rossem, A. J. The Sonora Races of *Camptostoma* and *Platypsaris* (*Proc. Biol. Soc. Wash.*, Vol. 43, July 18, 1930, pp. 129-131.)—*P. aglaiae richmondi* (p. 130) described as new from Sonora, Mexico, and *Camptostoma*

imberbe ridgwayi revived for birds from northwestern Mexico and southern Arizona.

Pickwell, Gayle. *Western Nature Study*, April, 1930, Vol. I, No. 2. Bird Number. State College San Jose, California.—An abundance of information in compact form on birds, bird study and bird conservation in central California.

The Ornithological Journals.

Bird-Lore. XXXII, No. 4. July-August, 1930.

Tern-ing Around. By F. R. Flickinger and Lawrence D. Hiatt.—Common Tern Colony on Lake Erie islands.

Causes of Mortality Among Birds. By F. T. Davis.—A tabulation of 257 birds found dead shows that the automobile was responsible for the greatest number 66; 56 were shot but 28 of these were Starlings and most of the remainder Hawks; "boys" were responsible for 46, half of which were Robins and Catbirds, while cats destroyed 34.

The Baby Bird Leaves Home. By Alan Devoe.—An account of the problems facing a young bird.

There is a frontispiece of the Ivory-billed Woodpecker by Sutton, and an account of the species by F. M. Chapman.—In the Audubon Department Dr. A. A. Allen has an illustrated account of the Cedar Waxwing. Dr. Pearson an account of the recent International Ornithological Congress at Amsterdam and A. H. Hadley a report on a visit to Cobb's Island, Va. Absolute disregard for the laws was found to be prevalent on the island and eggs were carried away by the bucketfuls while shore-birds were shot. It is encouraging to know that a Deputy U. S. Game Warden is now established on the Island as a result of Mr. Hadley's visit.

The Condor. XXXII, No. 4. May-June, 1930.

Twenty-five Minutes in the Life of a *Selasphorus* Hummingbird. By Tracy I. Storer.—A chart shows the exact time devoted to chasing, perching and feeding during a continuous observation of a single bird.

The Ravens of the State of Washington. By J. Hooper Bowles and F. R. Decker.—Many photographs showing nest locations on buildings, tressels, cliffs, etc.

Breeding of the American White Pelican on the Texas Coast. By J. J. Carroll.—With excellent photographs of the colony.

The Specialized Feathers of the Sage Hen. By Allan Brooks.—Finds that the fresh feathers are just like the supposedly "worn" feathers of the breeding season.

A Fossil Goose from the Ricardo Pliocene. By Loye Miller.—*Branta howardae* (p. 208).

In 'Notes from Field and Study' J. Berlioz describes a hybrid Hummingbird, *Calypte anna* × *Stellula calliope* from the collection of the Museum of Vertebrate Zoology obtained in the Sierra San Pedro Martir, Lower California.

The Wilson Bulletin. XLII, No. 2. June, 1930.

The Crown Sparrow (*Zonotrichia*) of the Middle West. By Myron W. Swenk.—An exhaustive consideration of habits, migration and distribution with a bibliography.

Status of Gambel's Sparrow in Michigan. By J. Van Tyne.

The Sequence of Molt. By Lynds Jones.—A valuable contribution to the subject of molt. The feathers are grouped under six heads in order of replacement, the study being based on the Bobolink.

Breeding of the Least Tern in Iowa. By William Youngworth.

Breeding of the Least Tern on the Mississippi River. By A. F. Ganier.

Common Terns Nesting Near Toledo, Ohio. By L. W. Campbell.

Chimney Swift Banding Operations at Chattanooga. By W. R. Green.

Some New Birds for Oklahoma. By Edith R. Force and W. H. Koons.

Recent Bird Records from Northeastern Colorado. By F. L. Fitzpatrick.—An annotated list.

The Cardinal. II, No. 8. July, 1930.

Notes on the Northern Pileated Woodpecker in Pennsylvania. By G. M. Sutton.—An excellent review of the subject with photographs of old and young by Norman McClintock. The author seems to have missed a paper on the bird in the central part of the State by Samuel Scoville (Cassinia for 1919) with a good photograph by McGrew.

A Bobolink Nest. By B. H. Christy.

The Goshawk Law. Two papers by L. A. Lutringer of the game commission, and B. H. Christy. The latter shows clearly the inexcusable attitude of the Commission in backing such a bounty law and reversing leading advocate of the proper economic attitude towards birds of prey. Mr. Lutringer of the Commission, upholds the bounty law.

Bulletin of the Essex County [Mass.] Ornithological Club. No. 11. December, 1929 [=1930].

A European Black-headed Gull in North America. S. G. Emilio.—Detailed account of the bird recorded in 'The Auk' 1930, p. 243.

Field Identification of Massachusetts Gulls. By Ludlow Griscom.—A useful summary and comparison of field characters for all plumages.

Breeding of the Yellow-crowned Night Heron (*Nyctanassa violacea*) at Ipswich. By Charles W. Townsend.

The Shooting Season of 1929 in Essex County. By John C. Phillips.

Is it thumbs down on Hawks and Owls? By John B. May.—Here is a strong argument by a State official which the Pennsylvania authorities might read to advantage! Dr. May concludes his article: "Let's be real sportsmen not game hogs" and give the Hawks and Owls their proper due as destroyers of mice, etc. But unfortunately the sportsmen do not consider the naturalist, the farmer, or anyone else who pleads for anything that may occasionally kill game.

Ipswich River Bird Trip 1929. By Ralph Lawson.

Note on the Yellow Rail. By Horace Green.—Valuable notes on sight identification.

Further Notes on the Great Horned Owl at Ipswich. By C. W. Townsend.

The Artichoke River Region. By S. G. Emilio.

An Invasion of Little Blue Herons in Essex County in 1929. By C. W. Townsend.

Annotated List of Birds Observed by the Essex Co. Ornithological Club during 1929. By A. P. Stubbs.

There is also a sketch of the late Charles J. Maynard.

The Oölogist. XLVII, No. 6. June, 1930.

The Connecticut Warbler in Alberta. By A. D. Henderson.—Additional information on the Alberta nests recorded in the October 1929 'Auk'.

The Oölogist. XLVII, No. 7. July, 1930.

Nesting of the Short-billed Marsh Wren in Ohio. By Homer F. Price.

Bird-Banding. I, No. 3. July, 1930.

Notes on Banding Operations on the North Shore of the Gulf of St. Lawrence in 1929. By Harrison F. Lewis.

The Banding of Chimney Swifts at Chattanooga, Tennessee. By W. R. Green.

Behavior and Local Distribution of Tufted Titmice in Winter and Spring. By Mabel Gillespie.

A List of Banding Stations in the Territory of the Northeastern Association. By Charles B. Floyd.

Some Purple Finch Notes Principally on the Moults of the Primaries and Secondaries. By M. J. Magee.

The Gull. XII, Nos. 5 and 6. May and June, 1930.

Interesting papers by H. DeFremercy and J. Grinnell on the use of "subspecific" vernacular names for ordinary field work.

The Raven. A set of mimeographed pages gives details of field work by the Virginia Society of Ornithology and a like production **The Migrant** does the same for the Tennessee Ornithological Society. Let us hope that both may follow the lead of 'The Murrelet' and become printed journals with a definite literary standing.

The Ibis. (12th series) VI, No. 3. July, 1930.

Field Notes on Greenland Birds Part II. By E. M. Nicholson.—A very valuable contribution to the life histories of birds of the far north, many of which are discussed at length.

Notes on Some African Bustards with Descriptions of New Forms. By D. A. Bannerman.—*Choriotis arabs lynesii* (p. 432) southeast of Rabat; *C. a. bulleri* (p. 433), White Nile, *Lissotis melanogaster major* (p. 435), Zululand are proposed as new.

Notes on the Breeding Birds and Eggs of Some Birds of the Region south of Lake Nyasa. By A. H. Paget-Wilkes.—A well annotated list.

Some Autumn Observations on the Avifauna of the Pyrenees. By H. Whistler and J. M. Harrison.

On the Relationships of the Aepyornithes to Other Struthionies. By Percy R. Lowe.—Based upon a study of the pelvis of *Müllerornis betsilei* Andrews in the British Museum and another pelvis recently obtained by Dr. E. I. White, both from Madagascar. Dr. Lowe concludes that the Aepyornithes appear to be specialized derivatives of the basic Struthionic group which gave origin to the Cassowaries.

Six Weeks in Southern Algeria. By Cecil Hull.

Dr. G. Carmichael Lowe has a letter on "Nomenclatural Confusion" in which he points out that the central committee of well known ornithologists who drafted the British List do not themselves use the names that they as a Committee decided upon, when they do not meet with their individual views. Personal opinion will always decide questions upon which there is legitimate difference of opinion and as he says universal agreement in such cases is probably impossible but they are only a small proportion. In one paragraph he cites the adoption of the genus *Megalornis* for the older name *Grus* and deplores the confusion that ensues when the International Commission has "revived" the latter. This case hinged upon a question of nomenclature about which there was much difference of opinion. The obvious thing to do was to submit it to the Commission which alone has recognized authority. This was finally done and the long recognized name was upheld. Meanwhile, however, the British and the American Ornithological Committees took action on their own account and changed the name. It is hardly fair in this instance to charge the International Commission with upsetting names!

If all such mooted questions were promptly submitted to the latter body many unnecessary changes might be avoided.

Bulletin British Ornithologists' Club. CCCXLII. June 4, 1930.

Mr. H. F. Witherby has a paper on an ornithological trip through eastern Spain.

Bulletin British Ornithologists' Club. CCCXLIII. July 14, 1930.

Discussion on *Puffinus puffinus* and its races.

Review of the genus *Alcippe*. By C. B. Ticehurst, *A. nepalensis stanfordi* (p. 84), Arakan Yoma, proposed as new.

British Birds. XXIV, No. 1. June 2, 1930.

Safety Devices in Wings of Birds. By R. R. Graham.—An extended discussion of flight with particular reference to emarginated primaries and the movement of individual feathers in the spreading of the wing (continued in July and August.) His conclusions are that wing tip slots formed by gaps between the emarginated tips of flight feathers in the fully spread

wing depend in number on the length of the wing, being absent in a long pointed wing and most numerous in a short rounded one. By doing away with the mutual support between feathers at the edge of the wing they form an automatic anti-stalling device which appears to work in the same way as the Handley-Page slotted aeroplane wing. They lessen the losses in wing efficiency, due to the spilling of air over the tip, and reduce the amount of twisting required in a flapping flight to align the outer parts of the wing to the gradient of the air-stream. A second anti-stalling device is found in the alula which in form, action and effect still more closely resembles the Handley-Page auxiliary aerofoil.

British Birds. XXIV, No. 2. July 1, 1930.

Night Soaring of Swifts. By P. W. Mason.

British Birds. XXIV, No. 4. September, 1930.

Nesting of the Greater Yellowshank. By William Rowan.—In Alberta.

Notes on Montague's Harrier. By G. Corlett.

Notes on Cuckoos in 1930.

The Oologists' Record. X, No. 2. June 2, 1930.

The Nesting of the Little Grebe in S. W. Uganda. By C. R. S. Pitman.

Some Notes on the Breeding of the Dwarf Goose (*Nettapus auritus*) in Uganda. By C. R. S. Pitman.

The Eggs of the Standard-winged Nightjar. By C. R. S. Pitman.

Additional Notes on the Breeding of the Long-tailed Nightjar. By C. R. S. Pitman.

Sidelights on Oölogy. By "Nemo."—After pointing out the really scientific opportunities open to the oölogist the author says "There is today less excuse than ever there was for the so-called egg-collector who merely amasses a lot of pretty specimens without any regard to their significance and none at all for the collector who aims to acquire, by some means or other, specimens of all the eggs of his own or some other country."

Eggs of the Accipitres of Uruguay. From Devoncenzi's 'Birds of Uruguay.'

Birds Observed in the Neighborhood of Angol, Chile. By D. S. Bullock.

The Emu. XXX, Part 1. July, 1930.

The Gascoyne Cuckoo-Shrike (*Coracina gascoynensis* Ashby). By E. Ashby.—With a colored plate.

The Yellow-throated Scrub Wren: A Monograph. By A. J. Marshall.

Where East Meets West. By B. S. Morse and C. Sullivan.—Exploration of the Terrerree Forest, Australia.

Notes on the Rock Warbler. By K. A. Hindwood.—*Origma rubricata*.

Observations on the Habits of Cuckoos. By K. A. Hindwood.—Discusses anew the method employed in getting the egg into nests too small or so domed that the Cuckoo cannot deposit it directly.

The Third Report of the Migration Committee.

The Western Rosella (*Ptilinopus icterotis* Kuhl.) By C. F. H. Jenkins.
A Glimpse of the Bird-Life Between Mandurah and Bunbury, W. A.
By D. L. Serventy.—An annotated list.

Observations on the Satin Bower Bird with Regard to the Material Used
in Painting its Bower. By R. A. Gannon.—Apparently chews up bits of
charcoal which, mixed with saliva, is applied to the sticks forming the
bower which are thus entirely blackened.

Oystercatchers in Tasmania. By M. Sharland.—*Haematopus ostralegus*
and *H. unicolor*.

The Many-colored Cassowary: A Correction. By J. R. Kinghorn.
Casuarus unappendiculatus multicolor LeSouef, proves to be the second
known specimen of *C. mitratus* Rothschild.

The Behaviour of Birds and Other Animals During Earthquake. By
P. Moncrieff.—Data on the fright and actions of both wild and domestic
species during the New Zealand earthquake of June 1929.

Whisper Songs. By James Pollard.

South Australian Ornithologist. X, Part 7. July, 1930.

Stubble Quail Alighting on the Sea. By E. S. Rymill.

Notes on Birds seen between Lake Torrens and Tarcoola. By J. B.
Cleland.

Round About the Islands near the Murray Mouth. By J. Sutton.

The Batteleur. II, No. 2. April, 1930.

The Sharp-billed Honeyguide. By Austin Roberts.—*Prodotiscus*
regulus.

Birds of Marsabit Mountain, Kenya Colony. By R. B. Sharpe.

A Revision of the Races of *Halcyon chelicuti*. H. F. Stoneham.—
H. c. phaethon (p. 50) Uganda and *H. c. zinjense* (p. 51) Dar-es-Salaam,
Tanganyika are described as new.

Additions to the African List, etc.

The Batteleur. II, No. 3. July, 1930.

Swallows Alighting to Pick Insects off the Ground. By J. E. M. Mellor.
African Birds Names in Ki-Swahili. By D. W. Howell.

Notes on Egyptian Birds. By H. F. Stoneham. Part I covering 46
species with extensive field notes.

Alauda. II, No. 3-4. July-August, 1930. [In French.]

The Forms of *Gelichelidon nilotica*. By Baron Snouckaert van Schau-
burg.

Geographical Variation in *Certhia familiaris* in western Europe. By
H. Jouard.

A New Partridge from the Mountains of the Central Sahara. By L.
Lavauden.—*Alectoris barbara duprezi* (p. 242).

The Cold and the Birds in 1928-1929. By H. Heim de Balsac.

L'Oiseau. XI, No. 5. May, 1930. [In French.]

Contribution to a Study of the Avifauna of the Island of Noirmoutier. By M. Rocard. (continued.)

The Food of Birds of Prey and the Plucked Feathers of Birds. By J. Morbach.—A Study of pellets and of gathered feathers as indicating food.

A Deposit of Red Color on the Birdbands Carried by Herons. By A. Chappellier.

Some Remarks on Psittacosis. By A. Mouquet.

L'Oiseau. XI, No. 6. June, 1930. [In French.]

Notes on the Collection of the University Sun-Yatsen at Canton with Descriptions of new birds. By J. Delacour.—*Arborophila ricketti sini* (p. 337); *Cissa concolor jini* (p. 338) both from Lao-shan.

Banding Stations [of Europe]. By A. Chappellier. (continued in July.)

L'Oiseau. XI, No. 7. July, 1930. [In French.]

Descriptions of Thirty New Birds from French Indo-China. By J. Delacour and P. Jabouille.

Notes on *Pyrotrogon wardi* Kinnear with a Description of the Male of the Species. By J. Delacour.

Le Gerfaut. XIX. No. 4. 1929. [In French.]

Local notes on Belgian birds.

Journal für Ornithologie. LXXVIII, Heft 3. July, 1930. [In German.]

Studies of Bird Actions in the Berlin Zoological Garden. By G. Kramer.

A Forgotten Ornithological Author of the Sixteenth Century. By H. Hildebrandt—D. Johannes Wigandi.

On the Berry Food of Birds. By L. Schuster.—A list of berry bearing trees and shrubs of Germany with the birds that have been recorded feeding upon them.

A Third Bird Collection from Kwangsi. By E. Stresemann.

A Physiological—anatomical Study of the Foot of Woodpeckers. By H. Scharnke—An elaborate and well illustrated contribution.

On the Lipochrome of the Bird Feather. By H. Desselberger.—A detailed study with a full bibliography.

Ornithologische Monatsberichte. XXXVIII. No. 4. July-August, 1930. [In German.]

Observations on the Breeding Habits of *Megapodius*, *Talegallus* and *Aepyptodius*. By E. Mayr.

On Forms of the Palearctic Shrikes (*Lanius collurio* and *L. cristatus*) and their Taxonomic Value. By B. Stegmann.

Beiträge zur Fortpflanzungsbiologie der Vogel. VI, No. 4. July, 1930. [In German.]

On the Problem of Parasitism. By W. Meise.—The Cuckoo problem.
Nesting of the Crane (*Grus monachus*). By H. Johansen.
At the Eyrie of the Lammergeier. By C. Stemmler.

Beitrage zur Fortpflanzungsbiologie der Vogel. VI, No. 5.
September, 1930. [In German.]

On Breeding Habits of Birds of the Sea of Antioch. By J. Aharoni.—
Numerous notes on breeding birds of middle Europe.

Der Vogelzug. I, No. 3. July, 1930. [In German.]

Report on Bird Watching at Rossiten. By E. Schuz.

On the Migration Route of the Ring Ousel. By R. Drost.

On the Departure Time of migrating Birds and its Dependence on
Light. By R. Drost.

Notes on the migration route of *Gavia arctica* and other local notes.

Tori. VI, No. 29. April, 1930. [In Japanese.]

On the Summer Birds of Hokkaido. By Y. Yamishima.

A Discussion on *Chaunoproctus ferreirostris*. By M. Hachisuka.

On a New Form of *Procnonotus sinensis* from the Riu Kiu Islands. By
N. Kuroda.—*P. n. kobayashii* (p. 270).

A Collection of Birds from Java, Bali and Lombok. By N. Kuroda.

The Birds of Iceland. By M. Hachisuka.

OBITUARIES.

HENRY WETHERBEE HENSHAW, one of the leading field ornithologists of the Bairdian Period and a former Fellow, Councillor and Vice President of the Union, died after a long illness at Washington, D. C., Aug. 1, 1930. He was born at Cambridgeport, Mass., March 3, 1850, a descendant of one of the families of the Mayflower and the youngest of seven children of William and Sarah (Holden) Henshaw. He inherited from his mother an interest in natural history, keen powers of observation, and a literary taste which did much to mold the interests of his later years. It was his privilege to know personally most of the American ornithologists since the middle of the 19th century, but it was also his fate to outlive most of his associates and to demonstrate anew the warning of the psalmist regarding those whose ages reach four score years.

The actual shaping of his career was due chiefly to four of his friends: William Brewster, his companion in early bird studies; Prof. Spencer F. Baird, his adviser in scientific work, through whom he secured his appointment on the Wheeler Survey; Major J. W. Powell, with whom he became associated in ethnology; and Dr. Albert Mann, a close friend of his later years and his mentor in the study of diatoms. Ill health, which caused his abandonment of a college career, his resignation from the Bureau of Ethnology, and finally his retirement from the Biological Survey, merely forced a change of occupation at certain periods but did not cut off his activities until they had continued beyond the usual allotted span of life.

As an ornithologist, Henshaw was able to make many interesting and important discoveries and some substantial contributions to the literature of his favorite science. He demonstrated the identity of Williamson's and the Round-headed Woodpecker, and the differences between the Rufous and Allen's Hummingbirds, added a number of species to the list of North American birds, and studied and reported on several difficult groups.

By a curious combination of circumstances he was in a position to nominate both his predecessor and his successor as head of the Biological Survey. During the eleven years of his connection with the Survey the economic phases of the work were emphasized, some of the most popular illustrated bulletins on birds issued by the Department of Agriculture were published, sixty-seven bird reservations and five big-game refuges were established, traffic in bird plumage was practically ended, Federal protection of migratory birds became a fact, and the Migratory Bird Treaty with Great Britain was signed.

Henshaw was an easy and graceful writer, an all-round naturalist, well versed not only in ornithology and ethnology but also in herpetology and in roadside botany, was familiar with the ferns, asters, and goldenrods

native to the District of Columbia, was deeply interested in diatoms, and was an unusually skillful photographer. By nature he was singularly modest and retiring and while he had many acquaintances his close friendships were limited to comparatively few individuals. He had a charming personality, was a sincere and valued friend, and was held in high esteem by his associates. He disliked crowds and had such an abhorrence of appearing before an audience that he seldom delivered an address in public or presided at a meeting. It was this peculiar dislike of publicity that caused him to decline to become a candidate as President of the American Ornithologists' Union. It is interesting to recall that his active ornithological work came to a close with the publication of his 'Autobiographical Notes' and his memorial of his life-long friend, William Brewster. His collection of birds is in the British Museum and his collection of diatoms was bequeathed to Harvard University.

In accordance with custom and an order of the Council, a memorial of his work will be presented by one of his associates at a stated meeting of the Union.—T. S. P.

WALTER DEANE, since 1897 a member of the American Ornithologists' Union, died at his home in Cambridge on July 30, 1930, after a brief illness. The eldest of the four sons of Charles and Helen (Waterston) Deane, he was born at Boston on April 23, 1848, and grew up in the intellectual atmosphere of that city and of Cambridge, whither the family shortly removed. He graduated from Harvard College in the class of 1870 and in the following year became instructor at St. Mark's, the well-known preparatory school for boys at Southborough, Mass. It was here, in 1878, that his marriage took place to Margaret Chapman Coolidge, the principal's daughter. In the same year he left St. Mark's to take up similar duties at the private school of J. F. Hopkinson—"Hoppy's"—of Boston, where he continued until 1895. These twenty-five years of contact with boys and young men became the source of many lifelong friendships.

With a mind that readily grasped small details, he had always possessed a keen interest in natural history, particularly in botany, so that it was no doubt a happy choice that led the late William Brewster to select him as an assistant at his private museum, where for ten years, from 1897 to 1907, in a multitude of ways, he had much to do with furthering the work of Brewster's genius, in the care of the collection, the filing and indexing of voluminous notes, and in the preparation of the 'Birds of the Cambridge Region' and other faunal papers that Brewster then had in mind. He became an associate member of the A. O. U. in 1897, and in 1901 was elected to the class of Members. Except for occasional brief notes, his ornithological contributions are few but he maintained a well-kept journal replete with observations on birds, whose minutest actions were ever to him a source of delight. In later years the summers spent at Shelburne, N. H., were gladdened by the intimacy of bird life, as in the case of Humming-

birds that he induced to sip sweetened water from a glass held in his hand. Bird-banding appealed to him as a means of extending knowledge of habits, and he took active part in this work as opportunity allowed. As an amateur botanist, Walter Deane held high rank. His private herbarium overflowed a large room and after his retirement from more active work in 1907, was a source of unfailing interest and intellectual profit. He was president of the New England Botanical Club from 1908 to 1911 and in connection with the activities of the Club, compiled and edited a 'Flora of the Blue Hills,' besides frequently contributing specimens to the Club's herbarium and brief papers to botanical journals. For over forty years, from 1883 to 1925, he was secretary of the Old Cambridge Shakespeare Association to the details of which he devoted much attention. In 1897 he was elected a member of the Nuttall Ornithological Club and later served for many years on its council.

His was an eminently genial and social spirit. Though without children of his own, he was the friend of all young people in his neighborhood. He never lost an almost boyish delight in any unusual or interesting fact about plants or animals and an eagerness to share his enthusiasm with others; the most minute details were never too small to arouse his whole-hearted attention. Generous, sympathetic, ever thoughtful of others, his kindly nature went out to all whom he touched. Few men have given so freely of their affection and few have been more beloved.—G. M. A.

WILLIAM STURGIS BIGELOW was born in Boston, Mass. on April 4, 1850 and died in the same city on October 5, 1926. He was the son of Dr. Henry J. Bigelow, the famous Boston surgeon, known to anatomists the world over as the demonstrator of the Y ligament of Bigelow.

William Sturgis graduated from Harvard College in 1871 and took his medical degree from the University in 1874. During the following five years he studied abroad under prominent European physicians. Returning to America in 1879, he entered private practice, but in the early 80s, abandoning medicine, he went to Japan where he lived for the following seven years.

The study of Oriental art and religion occupied a large part of his life henceforth. He gathered together a very large number of valuable Japanese and Chinese treasures which now form the famous Bigelow Collection in the Museum of Fine Arts in Boston.

His study of Buddhism lead him finally to become a member of the Tendel Sect and on his return to America he delivered a course of lectures on Buddhism at Harvard College.

Dr. F. C. Shattuck, a contemporary and intimate friend of Dr. Bigelow, describes him in the Proceedings of The Massachusetts Historical Society as one of "those who avoid coming, to say nothing of thrusting themselves, before the public, whose life is internal rather than external, who do not write, who hide from one hand what the other hand doeth."

From this expression by Dr. Shattuck of his friend's reticence we under-

stand why Dr. Bigelow left behind little written testimony of his interest in art and science. His life at Tuckanuck, an island extending out to sea from the western end of Nantucket, where, for a time, Dr. Bigelow spent the summer months, afforded opportunity for gaining an intimate knowledge of the avifauna of an interesting corner of New England. However, his interest in birds was shown solely by aiding in the support of The Boston Society of Natural History, serving on the Council for years, and holding Associate membership in the American Ornithologists' Union from 1920 until his death.—W. M. T.

EDWIN BEAUPRE, an Associate of the American Ornithologists' Union since 1922, died on June 2, 1930, in his 57th year. He was of French, Scottish, and Irish extraction, the youngest son of Edward and Esther (Moffatt) Beupre. He was born in the village of Portsmouth, adjoining Kingston, Ontario, Canada, Aug. 10, 1873, and except for a few years of his young manhood spent in Alberta, lived all his life in Portsmouth and Kingston. His business was the manufacture of carbonated beverages. In 1904, he married Anna Leahy, of Cleveland, O., who died in 1914.

As a result of a friendship with the late Dr. C. K. Clarke, an enthusiastic bird-student then superintendent of the Provincial insane asylum at Portsmouth, Beupre's boyish interest in sport and in ~~collecting~~ was transformed into a serious, life-long study of birds. He taught himself to prepare birds' skins and to mount birds, and he gathered a small collection of such specimens; but his chief interest as a collector was in eggs and nests. He was reluctant to buy or to sell specimens; for he deplored the activities of the commercial collectors which sometimes threaten rare species. He exchanged with other collectors, but his specimens were chiefly personally collected, and at the time of his death comprised a good representation of the breeding birds of Canada. He was constantly in the field through eastern Ontario often with Rev. C. J. Young a close friend for many years, and among his longer collecting trips were those to the Magdalen Islands in 1903 and 1926, to the islands of Georgian Bay in 1918, and to Alberta, north of the Athabasca River in 1929. He was not merely a collector, but was also a careful and accurate observer, a bird photographer, and a bird bander. He occasionally contributed notes to "The Canadian Field-Naturalist," and other ornithological journals; but he preferred to make the results of his observations known through letters to specialists in various fields of ornithology. At the Ottawa meeting of the A. O. U. in 1926, he met several of those with whom he corresponded, in some instances for the first and only time.

Under his will his collection passed to the Royal Ontario Museum of Zoology, Toronto, Ontario, Canada.—R. O. M.

HENRY RAYMOND HOWLAND, an Associate of the American Ornithologists' Union since 1924, died at Buffalo, N. Y., Feb. 4, 1930, in his 86th year. He was born in Springfield, Mass., June 1, 1844, the son of

Job F. and Emily (Alvord) Howland, and was a descendent in the sixth generation from John Howland who came over on the 'Mayflower.' His education was received in the grammar school of New York and the College of the City of New York. At the age of 19 he entered the Army and was sent to Port Royal, S. C. He saw active service in the Department of the South including the seacoast from Charleston to Florida, and the Army of the James, in Virginia. While on detail in Trenton, N. J., in 1864, to contract for army supplies he met Rebecca Letchworth, whom he married two years later. Through her relatives he was induced to take up his residence in Buffalo and for 13 years was associated with W. P. Letchworth and his brother Josiah in the Buffalo Malleable Iron Works and the Buffalo Steel Foundry. In 1882 he became secretary and treasurer of the John T. Noye Manufacturing Co., and in 1898 secretary and treasurer of the Spencer Lens Co.

Mr. Howland's interest in natural history manifested itself within a year after his removal to Buffalo and resulted in his association with the Buffalo Society of Natural Sciences, of which for more than half a century he was an active member, for some years a member of the board of managers, and served as corresponding secretary and director. His interests were broad including literature and history as well as natural science and he was an officer or member of many organizations. He was a regular attendant at the annual meetings of the American Society of Museums, was twice elected president, and for ten years served as a member of its board of managers.—T. S. P.

WALDO LEON RICH, as Associate of the American Ornithologists' Union since 1921, died of pneumonia at his home in Saratoga Springs, N. Y., on April 1, 1930, after a brief illness. He was born at Schuylerville, N. Y., Nov. 11, 1853, and was in his 77th year at the time of his death. When he was 12 years old his parents moved to Saratoga Springs where he was educated in the public schools. He graduated from Williams College in the class of 1876 and two years later was admitted to the bar. In 1880 he became associated with the Commercial National Bank of Saratoga Springs, and in 1883 he married Miss Sarah W. Pond, who survives him.

Mr. Rich was primarily a banker and was formerly identified with the First National Bank and for the last 28 years of his life was a teller in the Adirondack Trust Company. He had a collection of birds and one of butterflies, and a fine library containing a number of first editions and rare books, and he was greatly interested in horticulture. As President of the Saratoga Bird and Nature Club he took an active part in local work in behalf of conservation of wild life.

He was described as a faithful and devoted friend with the highest ideals in business relations and careful and exacting in everything he did. He made living a fine art and his congenial way of doing business put personality into ordinary banking transactions.—T. S. P.

HARRY MERRILL, one of the original Associates elected at the first meeting of the Union, died Nov. 13,¹ 1924, at his home in Bangor, Maine, after a long illness. Since no notice of his life has appeared in 'The Auk,' it seems desirable even at this late date to refer briefly to some of his activities. He was born in Bangor, Jan. 16, 1856, and was the son of Elias Merrill, a former cashier of the First National Bank. After graduating from the Bangor High School, young Merrill entered business and for many years was connected with the firm of Bowler & Merrill. In 1900 he set up business for himself as a broker in investment securities, but retired on Jan. 1, 1916, on account of failing health.

On June 3, 1884, he married Miss Alice D. Hight who, with his sister Miss Mary H. Merrill, survived him.

Between the ages of 25 and 45 Merrill contributed occasional notes to the 'Bulletin of the Nuttall Club' and 'The Auk,' relating mainly to the occurrence in Maine of species of birds of local interest. After his entry into the investment business his ornithological notes ceased, possibly because of lack of time for field work. His last contribution to 'The Auk' in 1917 was an obituary notice of Newell A. Eddy, a former Associate who, like himself, was a native of Bangor and was born in the same year.

Harry Merrill was one of the first Associates to receive the designation of 'Honorary Life Associate' of the Union in recognition of his membership extending over 40 years. He was genial and companionable and his unfailing good nature won him a host of friends. He gained the reputation of being a loyal and useful citizen, in business looking always to the interests of his clients and in his home life a patient and devoted husband.—T. S. P.

INEZ ADDIE HOWE, elected as an Associate of the American Ornithologists' Union in 1921, died at St. Johnsbury, Vt., Nov. 26, 1924. She was born in West Waterford, Vt., April 20, 1878, and was the daughter of Albert and Sophronia Hollis Howe. While still a young girl her parents moved to a farm in Spaulding Neighborhood where she attended school. Her advanced training was received at Lyndon Institute and later she taught in rural schools in the vicinity. In the summer of 1912 she assisted in the Fairbanks Museum of Natural Science at St. Johnsbury, joined the staff in the following year and maintained her connection with the institution during the rest of her life. In 1921 she became a member of the faculty of St. Johnsbury Academy and at the time of her death was head of the biology department.

Miss Howe was an indefatigable student and worker and did much to popularize the study of nature, especially of birds and botany, among young people. She was a member of the Vermont Bird and Botanical Clubs, a recognized authority on the botany of the state, and was selected by the Clubs to assist in the preparation of the revised edition of the Vermont Flora. She made a special study of the native orchids and in

¹Not Nov. 24, as stated in the List of Deceased Members.

connection with the botanical work of the Museum of which she had charge, she maintained a flower table which aroused wide interest. She also had charge of the class work at the Museum, was a frequent contributor to 'The Vermonter' and other magazines, and was much in demand as a speaker before clubs and schools.

Miss Howe was active in a field in which many more workers are needed and the sudden close of her work at the height of her career was a serious blow to the institution and the community with which she was associated.—
T. S. P.

NOTES AND NEWS.

THE Seventh International Ornithological Congress held at Amsterdam, June 1-7, 1930 is reported to have been a most successful and enjoyable gathering by all who were fortunate to be present.

The Congress was under the Presidency of Dr. Einar Lönnberg of Stockholm and over 300 members were present, the American delegation including Dr. J. P. Chapin, Dr. and Mrs. F. M. Chapman, Dr. and Mrs. T. Gilbert Pearson, Harry S. Swarth, Dr. Charles W. Townsend, Dr. J. Van Tyne, Dr. Alexander Wetmore and Dr. Casey A. Wood as well as J. H. Fleming of Canada. A lengthy program was presented with several excursions to bird reservations, Mr. F. E. Blaauw's Zoological park and other places of interest.

The next congress will be held in London in 1934 under the presidency of Dr. Erwin Stresemann.

IT MAY be none too soon for us to consider the fiftieth anniversary of the founding of the American Ornithologists' Union which occurs on September 26, 1933. On that date in 1883, twenty-one ornithologists met in the library of the American Museum of Natural History and founded the A. O. U. Of these only Mr. C. F. Batchelder, Mr. N. C. Brown, Dr. A. K. Fisher, Dr. C. Hart Merriam and Dr. R. W. Shufeldt, survive, while of the twenty-four additional "Active Members" elected at this first meeting there are still living Dr. George Bird Grinnell, Mr. Ruthven Deane, Dr. E. W. Nelson, Dr. T. S. Roberts, Mr. W. E. Saunders and Dr. F. W. Langdon (since resigned). Dr. Stejneger elected a "Corresponding Member" at this meeting and Dr. A. P. Chadbourne, Dr. B. W. Evermann, Mr. W. A. Jeffries, Mr. E. T. Seton, Mr. Frank Stephens and Dr. Charles H. Townsend elected "Associates" also survive a total of 18 "original members."

It would seem desirable to prepare a special program for this anniversary meeting and have with us if possible representatives of the other ornithologists' unions, and in order to make adequate preparations the place and time of the meeting should be determined well in advance and a committee appointed.

RELATIVE to the discussion of the Hawk Problem it is encouraging to know that while manufacturers of arms and ammunition have in the past sponsored "vermin" campaigns none of the firms affiliated with the Sporting Arms and Ammunition Manufacturers Institute are taking such action. They are moreover financing a series of game fellowships, for life history studies of game birds in various universities, which include the study of the influence of predatory birds and animals on game. The fellowships are under the advisory supervision of Mr. H. L. Stoddard. We are indebted to Mr. Aldo Leopold, in charge of the Game Survey now being conducted by the "Institute" for this information.

A MEMORIAL meeting as a tribute to the ornithological work of the late Arthur Trezevant Wayne was held at the Charleston Museum on June 30, 1930. An important outcome of the meeting was the decision of the Trustees of the Museum to raise funds for the purchase of Mr. Wayne's collection of South Carolina birds. It is most fitting that this collection should remain in Charleston as a permanent memorial to Mr. Wayne.

THE Virginia Ornithologists' Society was organized at Lynchburg, on December 7, 1929, with Ruskin R. Freer as president, and Dr. J. J. Murray, of Lexington, editor of a mimeographed journal 'The Raven' which will serve as a means of communication between the members.

THE practice of blinding birds by red-hot needles which has been in vogue in southern Europe since the days of ancient Rome has been forbidden in Italy by a recent law enacted by the Facist Government. Blinded birds call and sing almost constantly, which renders them valuable as decoys to draw other little birds to the nets, snares, or twigs smeared with glue set for their destruction.

It is at this time also illegal in Italy to sell the bodies of small birds in markets, which has long been a lucrative industry, but Dr. Pearson on a recent tour of the country was offered any number of *live* Skylarks, Finches and Thrushes and was told that should they "die" as soon as he took them there was no law to prevent him having them served on the table.

THE 10th New England Meeting of the Union will be held at the Peabody Museum, Salem, Mass., Oct. 20 to 23. With the large membership in Massachusetts and the Middle States the prospects are very favorable for a successful and well attended convention.

The first day will be devoted to meetings of the Council and Fellows and a business session in the evening. Public sessions will begin on Tuesday from 10 A.M. to 1 P.M. and the afternoon will be devoted to visiting historic and other points of interest. Headquarters will be at the Hotel Hawthorne and applications for reservations should contain an explanation that they are for the period of the meeting and should be made as early as possible.

Those who expect to present papers are requested to send the titles to the Secretary before Oct. 10, with a brief summary of the paper, and a statement as to the time necessary for its presentation and whether or not it is illustrated. If moving pictures are to be shown it should be clearly stated whether the film is inflammable or non-inflammable. To provide time for discussion, papers without illustrations will be limited to 30 minutes or less, illustrated papers to 45 minutes and moving pictures to not more than 3 reels under one title. These conditions are necessary to insure a well balanced program and the proper location and presentation of the papers.—T. S. P.

WHERE TO FIND 'THE AUK' IN PUBLIC LIBRARIES. In 'The Auk' for October 1929 appeared a list of the complete sets of 'The Auk' in public and private libraries. In addition to these sets are many others more or less complete and those in public libraries in the United States and Canada, so far as known, are given in the following list. These libraries are arranged alphabetically by State, city and institution to facilitate reference. When no entry appears after the name of the library the set is presumed to be complete from 1884 to 1930, but a parenthesis indicates an incomplete set and the dates show the inclusive years. Such a list as this is necessarily incomplete and subject to change as names of new institutions are reported or additions made to the volumes in a set.

It is hoped that this list which now includes nearly 200 institutions may be materially increased in the near future so that members of the Union who possess only the more recent volumes of 'The Auk' may have access to the earlier years in some public library near at hand.

Alabama.

Auburn, Alabama Polytechnic
Institute (1923-1930).

Montgomery, Dept. Archives and
History.

Arizona.

Tucson, University of Arizona.

Arkansas.

Fayetteville, University of Ar-
kansas (1890-1930).

California.

Berkeley, University of California
Davis, University Farm (1922-
1930).

La Jolla, Scripps Institution.

Los Angeles, Museum History
Science and Art; Public Library
(1890-1930).

Palo Alto, Stanford University

San Francisco, California Acad-
emy of Sciences; Public Li-
brary (1923-1929)

Santa Barbara, Museum of Nat-
ural History.

Colorado.

Boulder, University of Colorado.

Colorado Springs, Colorado Col-
lege—Colburn Library

Denver, Colorado Museum of
Natural History (1893-1930);

Public Library (1909-1910,
1919-1920).

Fort Collins, State Agricultural
College (1887-1930).

Greeley, Colorado State Teachers'
College (1887, 1890-1930).

Connecticut.

Hartford, Watkinson Library.

Lakeville, Hotchkiss School Li-
brary ().

New Haven, Peabody Museum,
Yale University

Southport, Pequot Library.

District of Columbia.

Washington (5), Library of Con-
gress; Public Library (current)
U. S. Dept. Agriculture; U. S.
National Museum (2)

Florida.

Gainesville, State Museum (1927-
1929).

Jacksonville, Public Library ().

Tallahassee, State College for
Women (1921-1930).

Winter Park, Rollins College.

Georgia.

Emory University (1921-1930).

Hawaii.

Honolulu, Bishop Museum.

Illinois.

Chicago (4), Field Museum; John Crerar Library; Public Library (1884-1918); University of Chicago.

Evanston, Northwestern University (1884-1899).

Peoria, Public Library (1887, 1890-1915).

Urbana, Natural History Survey.

Indiana.

Bloomington, Indiana University.

Fort Wayne, Public Library (1917-1930).

Indianapolis, State Library.

Muncie, Ball State Teachers' College ().

Iowa.

Ames, Iowa State College.

Cedar Rapids, Coe College (1887, 1890-1930).

Des Moines, State Library (except 1884 and 1911).

Iowa City, University of Iowa.

Kansas.

Atchison, St. Benedict's College (1888-1930).

Hays, State Teachers' College (current).

Lawrence, University of Kansas-Watson Library.

Manhattan, State Agricultural College.

Topeka, State Library.

Kentucky.

Murray, State Normal School ().

Louisiana.

New Orleans, Public Library (1913-1916); Tulane University (except 1884, 1885).

Maine.

Bangor, Public Library (1920-1930).

Brunswick, Bowdoin College.

Portland, Public Library; Portland Society of Natural History (10 vols. 1-16).

Maryland.

Baltimore, Enoch Pratt Free Library.

Massachusetts.

Amherst, Mass. Agr. College.

Boston (5), Boston Society of Natural History; Mass. Audubon Society; Mass. Department of Agriculture; Public Library; State Library.

Brookline, Public Library (1890-1930).

Cambridge, Harvard University; Museum of Comparative Zoology.

Fall River, Public Library.

Lancaster, Thayer Museum.

Lynn, Public Library (1909-1918).

Medford, Public Library (1911-1928).

New Bedford, Free Public Library.

Northampton, Forbes Library (1886-1888, 1912-1915).

Pittsfield, Berkshire Athenaeum and Museum (1888, 1905-1907, 1910-1916, 1921, 1924-1930).

Salem, Peabody Museum.

South Hadley, Mount Holyoke College.

Springfield, City Library Association.

Taunton, Public Library (except 1884).

Wellesley, Wellesley College (1884-1921).

West Springfield, Public Library (1923-1924).

Worcester, Natural History Society (1918-1930).

Michigan.

Ann Arbor, Museum of Zoology;
University of Michigan Gen-
eral Library (except 1884,
1885, 1889).

Detroit, Public Library.

East Lansing, Michigan State
College.

Grand Rapids, Kent Scientific
Museum; Public Library.

Minnesota.

Minneapolis, Athenaeum Library,
University of Minnesota (ex-
cept 1884, 1885, 1889).

Moorhead, State Teachers' Col-
lege ().

Saint Peter, Gustavus Adolphus
College ().

Winona, State Normal Library
(1913-1917).

Mississippi.

College, Agricultural and Mech-
anical College.

Missouri.

Kansas City, Public Library
(1890-1930).

St. Louis, Public Library (1884,
1885, 1889-1891, 1894-1930).

Montana.

Missoula, University of Montana.

Nebraska.

Lincoln, University of Nebraska.

New Hampshire.

Durham, University of New
Hampshire (1891-1916).

Hanover, Dartmouth College.

Hillsboro, Fuller Public Library
().

New Jersey.

Hoboken, Public Library ().

Newark, Public Library (1922-
1930).

New Brunswick, Rutgers Uni-
versity (1900-1930 lacking 10
vols.).

Plainfield, Public Library (1899-
1914).

Princeton University.

New Mexico.

State College, College of Agri-
culture and Mechanic Arts
(1911-1920)

New York.

Albany, State Library.

Auburn, Seymour Library (1920-
1924).

Aurora, Wells College.

Brooklyn (3), Brooklyn Museum;
Pratt Institute Free Library
(1921-1930); Public Library.

Buffalo, Buffalo Museum of
Natural Science (1886-1888,
1895-1930); Public Library
().

Hamilton, Colgate University
(except 4 numbers).

Ithaca, Cornell University.

New York (6), American Museum
of Natural History; Columbia
University; Nat. Assn. Audu-
bon Societies; N. Y. Zoological
Park; Public Library; Univer-
sity Club (current).

Poughkeepsie, Vassar College.

Rochester, University of Ro-
chester.

Syracuse, Public Library (1899-
1917); State College of For-
estry.

North Carolina.

Durham, Duke University.

Raleigh, State Museum (1889-
1930).

Ohio.

Cincinnati, Cincinnati Society of
Natural History; Public Li-
brary.

Cleveland (3), Cleveland Mu-
seum; Public Library (1887,
1890-1930); Western Reserve

- University—Adelbert College Library.
Columbus, Ohio State Museum; Ohio State University.
Delaware, Ohio Wesleyan University—Slocum Library (1921-1930)
Oberlin, Oberlin College.
- Oregon.
Corvallis, Oregon Agricultural College.
Eugene, University of Oregon.
Portland, Library Association (1894-1896, 1914-1917)
- Pennsylvania.
Germantown, Friends Free Library (1893-1930 except 8 vols.).
Harrisburg, Penn. State Museum (1916-1930)
Philadelphia (5), Academy of Natural Sciences; Free Library (1892-1928); Library Company (1893-1930); Mercantile Library (1900-); University of Pennsylvania (1887-1897).
Pittsburgh, Carnegie Library; Carnegie Museum.
Scranton, Everhart Museum (1921-1930).
- Rhode Island.
Providence, Brown University (1884-1886; 1889-1894); Park Museum (1890 to date except 1891, 1906-1909, 1911); Public Library (1890-1930).
- South Carolina.
Charleston, Charleston Museum.
Clinton, Presbyterian College of South Carolina ()
Columbia, University of South Carolina (1912-1913, 1922-1930).
- South Dakota.
Vermilion, University of South Dakota (1920-1930).
- Tennessee.
Murfreesboro, State Teachers' College (current).
Nashville, Geo. Peabody College for Teachers (1919-1930); Vanderbilt University (1916-1930).
- Texas.
Austin, University of Texas.
Belton, Baylor College ().
Denton, College of Industrial Arts (1927-1930).
Fort Worth, Carnegie Public Library (1909-1930).
- Utah.
Provo, Brigham Young University (1926-1930).
- Vermont.
Burlington, University of Vermont (1909, 1913-1930).
Ludlow, Fletcher Memorial Library (1922-1930).
St. Johnsbury, Fairbanks Museum of Natural Science (1884-97, 1900, 1902-06, 1922-1924).
- Virginia.
Charlottesville, University of Virginia.
- Washington.
Pullman, Washington State College.
Seattle, Public Library; State Museum (1890-1930); University of Washington.
- West Virginia.
Morgantown, University of West Virginia (1891, 1892, 1894, 1895).
- Wisconsin.
Madison, University of Wisconsin
Milwaukee, Public Museum.

Wyoming.

Laramie, University of Wyoming
(1898-1901, 1903).

Philippine Islands.

Manila, Bureau of Science.

Canada.

Halifax, Dalhousie University
(current).

London, Public Library.

Montreal, McGill University;
Mechanics Institute (1927-
1930).

Ottawa, Geological Survey; Li-
brary of Parliament.

Quebec, Laval University.

Toronto, Legislative Library
(1921-1930); Toronto Refer-
ence Library; University of
Toronto (1911-1930).

Winnipeg, University of Mani-
toba.

T. S. PALMER,
Washington, D. C.

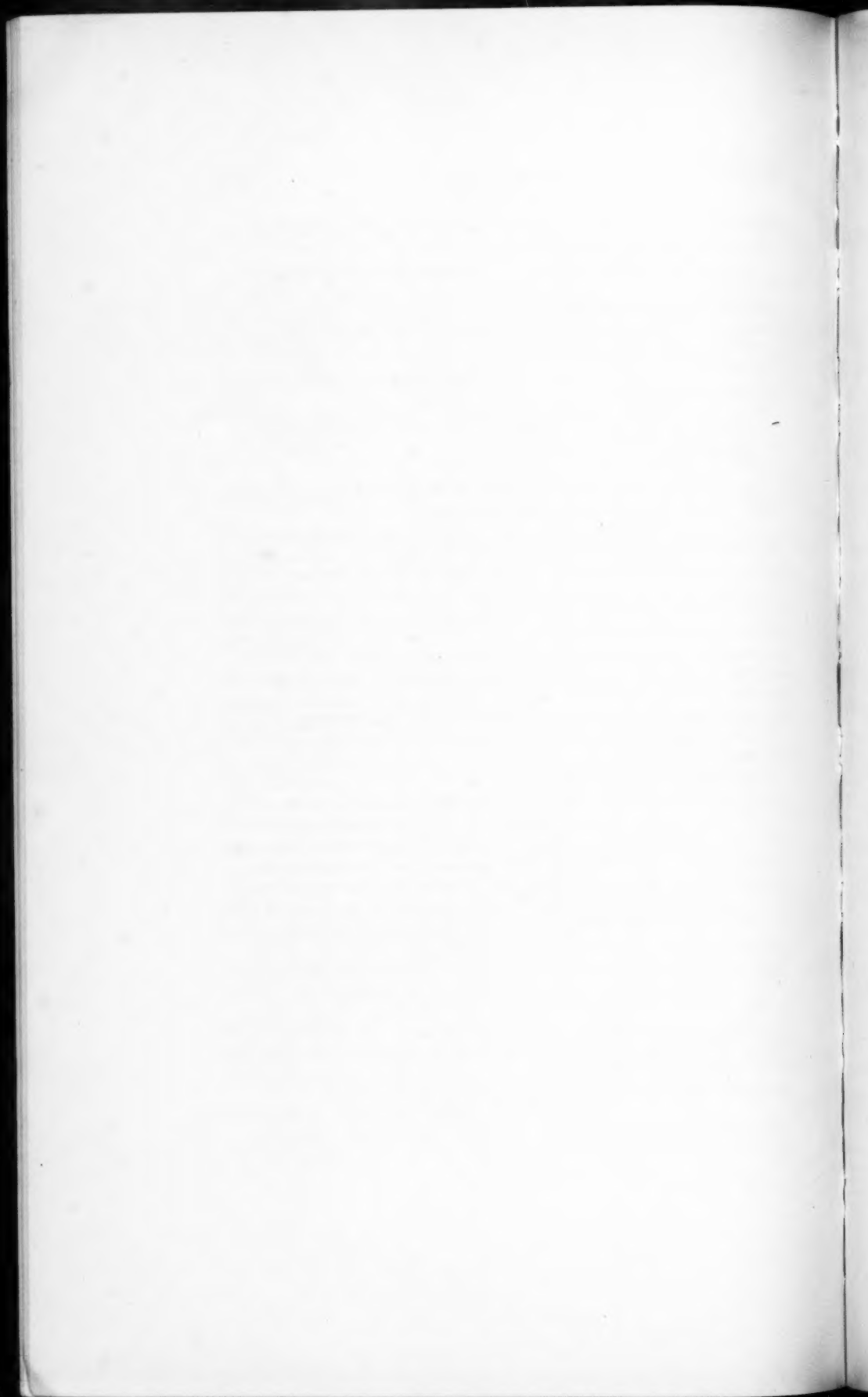
THE Baldwin Bird Research Laboratory now possesses improved resources and more assistance than ever before.

A step toward greater usefulness has resulted from a happy association with Western Reserve University. Mr. Baldwin has been appointed Research Associate in Biology on the Faculty of the Graduate School where he will aid in organizing research work in Ornithology for graduate students. Mr. Kendeigh has likewise been appointed to the teaching staff of the Department of Biology of the University and will have charge of courses in Ornithology. Mr. Kendeigh will continue his association with Mr. Baldwin throughout the year, dividing his time between the classroom and Research Laboratory. This is Mr. Kendeigh's sixth season in the laboratory. Leonard G. Worley returns from Harvard, where he has a teaching fellowship during the college year, for his third season in the Baldwin Laboratory.

A beneficent result of this association with Western Reserve is that graduate students of the University who are fortunate to find positions as assistants in the Baldwin Laboratory receive college credit toward advanced degrees for the summer's work. Three assistants, Theodore Kramer, James Stevenson, and Delos Johnson are taking advantage of this opportunity and two of them will continue throughout the year.

The nesting season is the time of intense activity in the Research Laboratory. Three hundred Wren boxes were kept under observation during the past summer on some sixty-five estates about Gates Mills, a field of study of several thousand acres. In 1929, two hundred and seventy adult Wrens were handled, and more than nine hundred young raised. Of the adults, seventy were birds banded in this vicinity in previous years.

Aside from the scientific work it is regarded as a duty to advise estate owners on methods of bird sanctuary work in conserving and protecting birds and wild life, thus providing a neighborly service of this kind in return for the courtesy shown the laboratory by estate owners.



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1	1883, Sept. 26-28	1st New York	21	23
5	1887, Oct. 11-13	1st Boston	17	284
10	1892, Nov. 15-17	4th Washington	20	557
11	1893, Nov. 20-23	2d Cambridge	17	582
12	1894, Nov. 12-15	6th New York	15	616
13	1895, Nov. 11-14	5th Washington	19	667
14	1896, Nov. 9-12	3d Cambridge	14	673
15	1897, Nov. 8-11	7th New York	18	679
16	1898, Nov. 14-17	6th Washington	21	695
17	1899, Nov. 13-16	1st Philadelphia	16	744
18	1900, Nov. 12-15	4th Cambridge	19	748
19	1901, Nov. 11-14	8th New York	18	738
20	1902, Nov. 17-20	7th Washington	25	753
20a	1903, May 15-16	1st San Francisco	7	—
21	1903, Nov. 16-19	2d Philadelphia	19	775
22	1904, Nov. 28-Dec. 1	5th Cambridge	17	808
23	1905, Nov. 13-16	9th New York	17	860
24	1906, Nov. 12-15	8th Washington	24	750
25	1907, Dec. 9-12	3d Philadelphia	20	850
26	1908, Nov. 16-19	6th Cambridge	17	888
27	1909, Dec. 6-9	10th New York	19	866
28	1910, Nov. 14-17	9th Washington	23	897
29	1911, Nov. 13-16	4th Philadelphia	18	887
30	1912, Nov. 11-14	7th Cambridge	18	929
31	1913, Nov. 10-13	11th New York	28	992
32	1914, Apr. 6-9	10th Washington	27	1101
33	1915, May 17-20	2d San Francisco	11	1156
34	1916, Nov. 13-16	5th Philadelphia	26	830
35	1917, Nov. 12-15	8th Cambridge	21	891
36	1918, Nov. 11	12th New York	14	953
37	1919, Nov. 10-13	13th New York	28	1024
38	1920, Nov. 8-11	11th Washington	25	1142
39	1921, Nov. 7-10	6th Philadelphia	25	1351
40	1922, Oct. 23-26	1st Chicago	24	1457
41	1923, Oct. 8-11	9th Cambridge	25	1652
42	1924, Nov. 10-13	1st Pittsburgh	26	1637
43	1925, Nov. 9-12	14th New York	30	1705
44	1926, Oct. 11-14	1st Ottawa	22	1815
45	1927, Nov. 14-17	12th Washington	30	1772
46	1928, Nov. 19-22	1st Charleston	27	1741
47	1929, Oct. 21-24	7th Philadelphia	25	1858

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